

# PHOTOREVIEW AUSTRALIA

JUN-AUG 2013

WWW.PHOTOREVIEW.COM.AU

## LACHLAN GARDINER

Alive and Clicking

## PURE GOLD

The Holtermann Collection

### HOW TO ►

Master sharpness, acutance and resolution  
Control bokeh and depth of field  
Correct with curves adjustments  
Print with a laser printer  
Make the most of standard zoom lenses

\$12.95 INCL. GST

Issue 56

ISSN 1839-5899

04



9 771445 907001



## REVIEWS

Panasonic GH3 | Fujifilm X100S | Sony RX1  
Pentax MX-1 | Plus 6 lenses



**Q: What's your favourite colour?**

**A: Now you have 100 choices.**

Pentax Q-10 is an amazing camera, now with an amazing choice of colours. It's the world's smallest interchangeable lens camera. Extraordinarily sharp, with incredible image resolution even in big poster enlargements. Now, choose your colour on our website and you'll have your own custom-colour camera in around 14 days. Choose a body colour and a grip colour to make it your very own. There's no other camera like Pentax Q-10. And now there's

**PENTAX**  
MAKE NO MISTAKE

**Q10**

no Pentax Q-10  
like yours.

**\$499**  
ONLINE  
ONLY



Buy now at [www.pentax.com.au/q10](http://www.pentax.com.au/q10)



# From glass plates to Glass

Making a wet plate negative is hard work.

First you have to make the collodion emulsion. This entails dissolving cotton that has been treated with nitric and sulfuric acids in a solution of ether and alcohol while adding a few drops of nitric acid and a dozen grams of zinc bromide. Next, you prepare a separate solution of water, alcohol and silver nitrate. The two solutions are then combined and left to 'ripen' overnight.

After ripening, your emulsion should have creamy consistency that means it's ready to be washed. But before you can wash it, you'll need to tip it into a dish to let the solvents evaporate off. Once that happens, you wash the now gelatinous material with water and then alcohol before finally re-dissolving it in a mixture of ether and alcohol.

**'Photography in the 19th Century wasn't about taking a photograph, it was making a photograph.'**

- Alan Davies, Curator of Photography for the NSW State Library

Just before you want to take a photograph, you retire to your darkroom (or dark-tent if you're in the field) to coat your plate. The process entails pouring an amount of the emulsion on to a glass plate which you then carefully tilt back and forth to achieve an even coating.

The final step before exposure is to dip your still wet plate into a container filled with silver nitrate solution so that your plate will become light sensitive.

With your wet plate loaded in the camera (some dripping is normal), you tell your subject to remain absolutely still as you remove the lens cap for a 5 to 30 second exposure.

A competent wet plate photographer could capture around 20 images a day, but real pros like Beaufoy Merlin and Charles Bayliss (whose work appears in *Pure Gold: The Holtermann Collection* starting on page 14) could produce an astonishing 70 to 100 negatives in a single day's work.

Convoluted and complex as the wet plate process was, it could be seen as photography's printing press moment. Until Gutenberg devised movable type around 1439, the only way to reproduce a book was to hire a scribe. And while there were paper negative processes around prior to wet plate, they were no match for the speed and superb quality of the new medium.

A few days before sitting down to write this piece, I read a leading tech guru's wildly enthusiastic account of using Google's soon to be released 'smart glasses'. A pair of Google Glass, er, glasses that weigh no more than a typical pair of sunnies, combines image and video capture with voice-controlled, head-up display driven access to various Google services (search, maps, groups and so on).

Leaving aside the immense privacy implications (every person their own panopticon!), it immediately struck me that should smart glasses become as ubiquitous as smart phones, we will see yet another dramatic increase in the already mind-boggling torrent of imagery flooding our world.

As technological change moves image-taking closer to ubiquity (in an instant your smart glasses can feed images to your online storage and your friends), and as image reproduction and distribution costs drop to near zero, it's hard to see how earning a living from photography will ever get any easier.

There may be a growing question mark over the future of photography as a profession, but I'm very confident that no matter what, the impulse to capture, share and to *make* images will be around for as long as humanity itself.

Happy shooting!

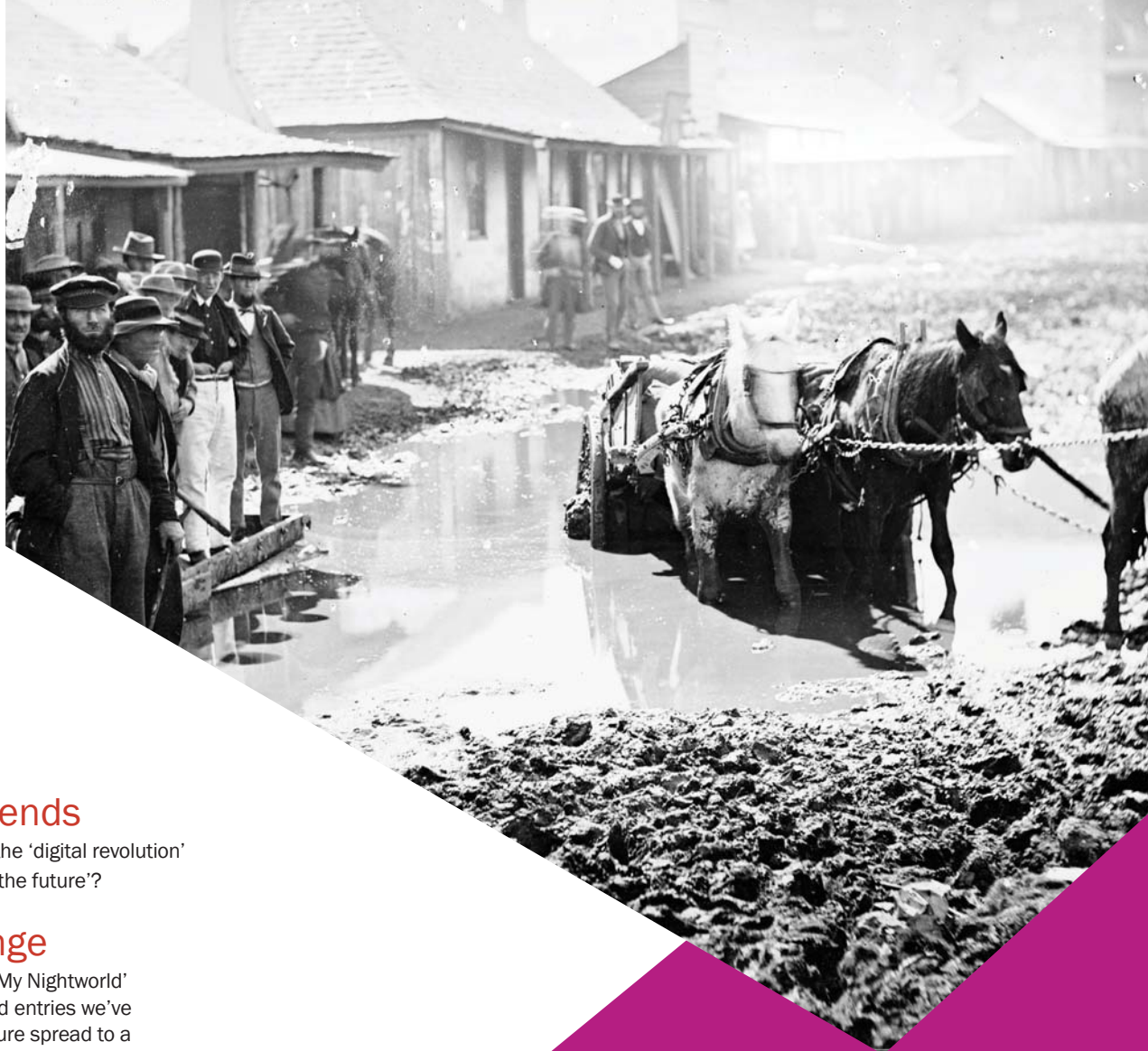
► Don Norris, Editor



Photo Review editor Don Norris is reasonably certain that he took his first photograph with a well worn Leica IIc at age 14. Every picture from that camera had a sort of soft, hazy look because the original screwmount lens was heavily scratched from years in the field with Don's geologist father Robert M. Norris. But using the little camera ignited a passion for picture taking that is now into its fourth decade. Convert those 40 years into the cameras he's used most intensively and the sequence reads: Leica IIc, Miranda SLR, Nikkormat SLR, Nikon FM, Nikonos III, Bolex H16, Mamiya C-33, Wista 4x5, Olympus E10, Nikon D70s, Nikon D90 and Nikon D7000. A few years after taking up photography, Don discovered the second great passion in his life (after his family of course!) when a summer job in Hawaii coincided with buying his first surfboard. In 1984 he migrated from his native California to Australia and these days he lives on Sydney's northern beaches from which he not only edits this magazine but also runs Australia's most popular surfing community website, [www.realsurf.com](http://www.realsurf.com).

## FOR THE VERY LATEST PHOTO NEWS AND REVIEWS

- Our Newsletter: <http://bit.ly/prnewsletter>
- On Twitter: <http://twitter.com/photoreview>  
[http://twitter.com/mr\\_realsurf](http://twitter.com/mr_realsurf)
- Our RSS feed: [http://bit.ly/pr\\_rss](http://bit.ly/pr_rss)
- On Facebook: <http://bit.ly/phrfacebook>



## 1 Editorial

## 5 Products & Trends

With the dust settling on the 'digital revolution' are we travelling 'back to the future'?

## 8 Photo Challenge

Our Issue 54 Challenge, 'My Nightworld' attracted so many inspired entries we've devoted an extended picture spread to a selection of them.



## INSPIRATION

### 14 Pure Gold: The Holtermann Collection

Australia's single most important collection of 19th Century photographic images spent 80 years in a Chatswood garden shed.

### 26 Alive And Clicking: Lachlan Gardiner

Documentary photography is a threatened species, but Lachlan Gardiner is a young practitioner who clearly has what it takes to breathe new life into this challenging field.

## INSIDER

### 38 Sharpness, Acutance and Resolution

How these important parameters affect the appearance of your photos.

## TECHNIQUE

### 34 Shooting: Bokeh and Depth of Field

How to capture images with attractive out-of-focus areas.

### 40 Editing: Correcting with Curves Adjustments

Using the Curves tool in your image editor to adjust image tones and contrast.

### 42 Output: Printing with a Laser Printer

How to get good-looking photo prints from a colour laser printer.

# Contents

**PHOTOREVIEW** AUSTRALIA

## BUYERS GUIDE

### 47 Making the Most of Standard Zoom Lenses

We begin a new series on lens types by looking at standard kit zooms.

### 51 The Value of Lens Hoods

Why you should always fit a lens hood – and how to make your own, when necessary.

## LENSES

### 54 Nikkor AF-S 50mm f/1.8G

### 54 Nikkor AF-S DX 18-300mm F/3.5-5.6G ED VR

### 54 Nikkor 1 18.5mm f/1.8

### 55 Panasonic Lumix G X Vario 12-35mm f/2.8 ASPH

### 55 Panasonic Lumix Vario G X 35-100mm f/2.8

### 55 Canon EF f/4L IS USM



Sony Cyber-shot DSC-RX1

## ADVANCED COMPACT ILC

### 56 Panasonic Lumix DMC-GH3

A durable Micro Four Thirds camera for enthusiasts who require versatility, performance and creative controls for shooting stills and movie clips.

## ADVANCED COMPACT FIXED LENS

### 57 Fujifilm X100S

### 58 Sony Cyber-Shot RX1

### 60 Fujifilm X-20

### 60 Pentax MX-1

### 62 Image Review

Don's critique of *Photo Review* readers' images.

## NET EFFECT

### 64 Net Effect

Another healthy handful of websites to fascinate and educate the photo enthusiast.

#### Editor

Don Norris  
dnorris@photoreview.com.au

#### Technical Editor

Margaret Brown  
mbrown@photoreview.com.au

#### Trade News Editor

Keith Shipton  
keiths@photoreview.com.au

#### Contributor

Steve Packer

#### Creative Director

Melissa Kallas

#### Publisher

David O'Sullivan  
dosullivan@photoreview.com.au

#### Publication Manager

Pauline Shuttleworth  
pshuttleworth@photoreview.com.au

#### Accounts Manager

Kate Addison  
mpaccounts@photoreview.com.au

#### Media Releases

edmail@photoreview.com.au

#### Advertising

Phone (02) 9948 8600  
pshuttleworth@photoreview.com.au

#### Subscriptions

One year (4 issues) \$39.00 including GST and delivery in Australia.  
See page 37 this issue or phone: (02) 9948 8600 or online: [www.photoreview.com.au](http://www.photoreview.com.au)

Photo Review Australia is printed on Pacesetter Satin Paper with ISO 14001 Environmental Accreditation Printed by Pegasus Print Group

Design by Cirasa Design  
[hello@cirasadesign.com.au](mailto:hello@cirasadesign.com.au)

Distributed by Network Services

All content in *Photo Review Australia* is protected under copyright and cannot be reproduced in any form without written consent from the publisher.

*Photo Review Australia* is published by

**MEDIA**  
PUBLISHING

Media Publishing Pty Limited  
ABN 86 099 172 577  
PO Box 4097  
Balgowlah Heights  
NSW Australia 2093  
Ph: (02) 9948 8600  
Em: [edmail@mediapublishing.com.au](mailto:edmail@mediapublishing.com.au)  
[www.mediapublishing.com.au](http://www.mediapublishing.com.au)  
[www.photoreview.com.au](http://www.photoreview.com.au)



Cover image by  
Lachlan Gardiner  
See page 26



**Manfrotto**  
Imagine More



Anti-Shock  
camera insert



**+ PROTECTION**  
FOR YOUR CAMERA

SPACE FOR YOUR  
**+ PERSONALITY**



**STILE<sup>+</sup>**  
**PLUS**  
COLLECTION

Stile Plus, a range of fully protective camera bags, with a big plus!  
No matter where you're going or what you're carrying besides your  
camera, Stile Plus is the best choice, with its protective Anti-Shock  
camera insert/padding and ample room for everything else.  
All bags available in 3 colours.

manfrotto.com  
manfrottoimagine.com

# Street photography 'disorderly behaviour'

There's been a lively debate on the rights and wrongs of street photography following the charging and conviction of a photographer for taking street snaps last New Years Eve in Perth.

He was charged with 'disorderly behaviour causing offence by taking photographs without consent' after an individual objected to the photographer (who also happened to be a photography teacher) taking photographs of his friend without permission.

The photographs were taken on an iPhone in a public space and the photographer, according to a friendly witness, 'did not engage in any furtive or dodgy behaviour. CCTV footage tendered to the court merely showed him sitting and snapping away from time to time.'

The young man objecting to the photography was somewhat drunk and belligerent and snatched the iPhone from the photographer and handed it over to a policeman.

The policeman, according to the prosecution, took the photographer into custody 'for his own protection' and he was charged with disorderly behaviour.

The magistrate noted on reviewing the CCTV footage, that there were many more disorderly people present than the photographer. He confirmed that under



*Street photography is legal but if you upset fellow citizens by taking pictures you could be charged with disorderly behaviour. Hmm... (Pic courtesy Margaret Brown.)*

Australian law and given the circumstances, the photographer did not have to seek the permission of the subject, who could not reasonably expect not to be photographed.

Nonetheless he was guilty of disorderly behaviour because members of the public did object to him taking photos without permission.

As a result his behaviour caused offence and so could be considered disorderly. Guilty as charged.

As Julian Tennant, a friend of the guilty party (and also a photographer) noted: 'On the face of

it, the basis that people don't have an inherent right to privacy and can be photographed in a public place does not change. HOWEVER, if somebody objects to having a photograph taken and is of the belief that the act of doing so is inappropriate or illegal (regardless of whether it is or not) then the photographer may find themselves in court charged with a 'one shoe fits all' type of charge such as disorderly behaviour and... found guilty.

Think about the implications of that, particularly if you are a street or documentary photographer.'

The Arts Law Council (<http://www.artslaw.com.au>) has some useful Fact Sheets on photographers' rights. In short, it states:

*It is generally possible to take photographs in a public place without asking permission. This extends to taking photographs of buildings, sites and people. There are, however, some limitations.*

*There are no publicity or personality rights in Australia, and there is no right to privacy that protects a person's image. Existing privacy laws are more concerned with storage and management of personal information and are of limited relevance to the present issue.*

## Time to stock up on film

Fujifilm and Kodak have flagged increases in the prices of their remaining film products, with Kodak also discontinuing production of three slide films.

Fujifilm has announced a 'substantial' rise in the price of Fujifilm photographic films, effective from last April. However, there may be a delay before increases kick in (in the US prices rise on July 1) providing a window in which customers can stock up.

No precise figure has been given, but it is expected to be 'at least double digit' in value. In the US the increase has been set at

approximately 20 percent across all film products including single use cameras. This follows a 20 percent price rise implemented by the company in 2012.

The Kodak films that will no longer be manufactured 'due to declining demand' are E100VS, E100G and Elite Chrome Extra Color 100. The company's intention to cease production of these films was announced roughly a year ago.

Kodak still produces Portra and Ektar colour negative films and Tri-X, T-Max and BW400CN monochrome films. The company



*You will still be able to buy Portra - but you will pay more.*

will be increasing the price of all its films by 15 percent, although no date has been provided for the price increase.

Both companies attribute the changes to a falling demand for film products, coupled with increasing costs for raw materials and energy.

## Photo Review readers buy everywhere and often

*Photo Review's* recent reader survey was well-supported by subscribers, with the size of the survey group (5 percent of the magazine's circulation, around 10% of subscribers) providing a realistic insight into the buying habits and technological preferences of what could be seen as the top end of the market.

More than 50% of the 357 survey respondents classified themselves as advanced or pro/semi pro, with a further 36 percent (the modest ones?) regarding themselves as 'mid-level'.

Three quarters of these photographers regularly shoot RAW files to achieve best possible image quality, despite the extra steps required in the conversion process. That alone defines them as seriously fair dinkum digital photographers! About the same number edit their photos regularly. Sixty percent take more than 2000 photos per year and an extraordinary 93% take more than 500 photos per year.

Gear of choice is a high-end or mid-level DSLR, with only 22% using an entry level DSLR. Just 26% use a mirrorless interchangeable model. It seems that the

smaller camera-and-lens systems haven't captured the imagination of the more committed photo enthusiast at this stage. (See story below on mirrorless interchangeable shipments.)

When it comes to printing their photos, there's an even split between those who print photos at home and those who print at a digital lab. But it's not an either/or situation; survey respondents were able to nominate more than one printing preference and it's clear that many of the respondents print both at home and in a store. What they don't do much of is use online printing services – only 16% nominated online printing as a preference.

However, almost one quarter use an A3+ printer. Imagine how many more might consider using an A3+ printer if they were more readily available – for some reason Australian photo retailers haven't supported this marvellous enabling technology very well.

When it comes to purchase intentions, *Photo Review* readers are what you might call 'high value individuals' as far as the photo companies are concerned. Sixty percent spend more than \$1000 per year on photographic gear, and they spread the spend



*The Canon 100D - the DSLR response to mirrorless interchangeable light weight and small size.*

around among local retailers and offshore businesses. Ninety-five percent buy gear at photo specialist retailers, 83% online from local businesses and 74% from offshore online businesses. The local photo industry clearly has a challenge in reducing that high offshore/online figure by bringing local pricing in line with what's available in the US and Hong Kong – and expanding the local range. There are simply a lot of products – especially accessories – unavailable or too hard to track down locally.

With 58% planning to buy a new DSLR in the next two years, a whopping 86% planning to buy a new lens, and 42% planning to buy a new printer, the advertising media buyers for the camera, lens and photo printer companies will presumably be beating a path to the *Photo Review* ad manager's door after seeing these results!

## Mirrorless shipments reflect flagging interest?

It's interesting to note the relative lack of interest in mirrorless interchangeable models among *Photo Review* readers (though while only 26% regularly use one, 82% want to see them reviewed in the magazine). Latest figures from Japanese camera manufacturers association CIPA show a dipping global market for mirrorless cameras.

This may be a temporary lull, or an indication that they just haven't managed to 'cross the chasm' after attracting an early adopter following. The next six months should make the position clearer.

CIPA predicted in January that there would be a total decline in the camera market of 11% in 2013, with compacts dropping 18% and interchangeables (DSLR and mirrorless) up 12%.

However, three months into 2013, something is seriously wrong. According to CIPA, overall Jan-March camera shipments are down to 57% of 2012 Jan-March levels in volume. Half as many digital compacts were shipped this Jan-March compared to 2012 Jan-March, which is

particularly disastrous for camera companies who specialise in consumer snapshot models. DSLRs are at 77% of 2012 levels, and mirrorless interchangeables are at 82% of 2012 levels. There were 4.3 DSLRs shipped for every one mirrorless interchangeable model.

The first quarter of 2013 was the worst for mirrorless cameras since CIPA started measuring shipments in Q1, 2012.

And if the appeal of mirrorless interchangeables is all about small size and light weight, Canon's new EOS 100D represents the DSLR fighting back. Compared to the highest rated mirrorless model, the Olympus EM-5, it's slightly lighter, not as wide, around the same height and only loses out in being slightly thicker. Word from our technical editor Margaret Brown is that the EOS 100D has a lot going for it, not least the small form factor.

Nonetheless, Sony seems to be putting most if not all of its eggs in the mirrorless basket. Last year it released a series of promotional videos talking up mirrorless cameras by taking

the mickey out of DSLR users. It's just followed up with a couple more of these 'DSLR gear, No Idea' ads, featuring gormless fellows making prats of themselves with their DSLRs until their technical ineptitude and social inadequacy are resolved by a Sony NEX camera.

Given that Sony is also in the DSLR market, this is a bit like Holden running ads mocking Commodore drivers as petrol heads who can't reverse park, with the Cruze being the answer to their problems.

Or maybe Sony's light-hearted mocking of enthusiasts is a sign that it has lost interest in DSLRs. After five or so years it certainly hasn't made any great inroads into the DSLR supremacy of Canon and Nikon (with around 90% of the market between them) and the latest rumour is that it will not be continuing with its pellicle mirror DSLR technology – or possibly even APS-C-sized DSLRs.

► Keith Shipton  
[www.photocounter.com.au](http://www.photocounter.com.au)

# Works of art



Epson Stylus® Pro 3880 A2



Epson Stylus® R3000 A3+ \*



Epson Stylus® R2000 A3+ \*



Epson Artisan 1430 A3+

Epson Photo Printers leaving nothing to be desired



\*Advanced, simple media handling



Unsurpassed quality

# PHOTO CHALLENGE:

## My Nightworld



### ► First Place

#### Feathers at Night by Royce Holliday

I think of the boy I was who, after his bedroom light was turned out, would shine his torch on feathers he found that day.

*(No post-capture processing was done. I took a photo of a feather lit by an ordinary torch and printed an A4 copy. Then I placed the same feather in the foreground of the photo, changed the ISO, set the focus on Flexible Spot on the foreground feather and took a second shot. No computer manipulation was used. My camera is a Sony DSC RX1. I have just recently taken up photography and am loving it!)*

The *My Nightworld* challenge was inspired by Mark Kimber's moody night locales, drawn from his Adelaide childhood. Featured in issue 54, Mark's photographs inspired us to set a challenge that we hoped would encourage participating photographers to produce their own nocturnal studies. And encouraged they were. Indeed, such was the uniformly high standard of our entries, that we've dedicated extra space to the Challenge this issue.

The winner by a short half-head was Royce Holliday's simple but cleverly constructed picture of a feather by torchlight. In recognition of his effort, we'll be sending him a Kata Revolver-8PL Backpack.

To overtax the horse racing motif, you could throw a blanket over the rest of the field this

time around. Penne Stevens' sculpture by night photograph wouldn't have been nearly as dramatic by daylight and Robert Zappia's frog close-up also benefits from the noirish effect of a single spotlight amidst the inky shadows.

We had our preconceptions about Maroochydore challenged by the gritty urbanism of Luke Smith's nicely composed street picture. Nick from Showgloss Pics found a striking streetscape himself and although we're not sure just what's going on, no one could say Geordie Elliott's composition lacks drama. Although pushing the limits of his camera's sensitivity, we found Andy Parkee's watchful dog a pleasantly peaceful *mise-en-scene*. And Jarrad Van Beem's photo reminded us of many a night at camp under a starry sky.



► **First Runner-up**

**Frog Exposed by Robert Zappia**

Heard a croaking noise after some recent heavy rain, so I grabbed the camera and a torch and went outside. A lovely big green frog had taken up residence on top of the water tank and was just begging to have its photo taken (seems like humans aren't the only species affected by 'celebrity culture').

► **Second Runner-up**

*"The waiting woman and dome of souls" by Penne Stevens*

The woman is looking out to sea, hoping to see the ship return, or maybe, she's turned her back, as it's all too much to bear. HMAS Sydney II memorial in Geraldton WA.



► **Honourable Mention**

*Untitled by Andy Parkee*

When my sons are getting ready to sleep, our dog Rocco will jump up on their beds, look out the window and give any passing dog or cat a good barking at. Here Rocco monitors the street after some rainfall.





► **Honourable Mention**

Untitled - Jarrad Van Beem

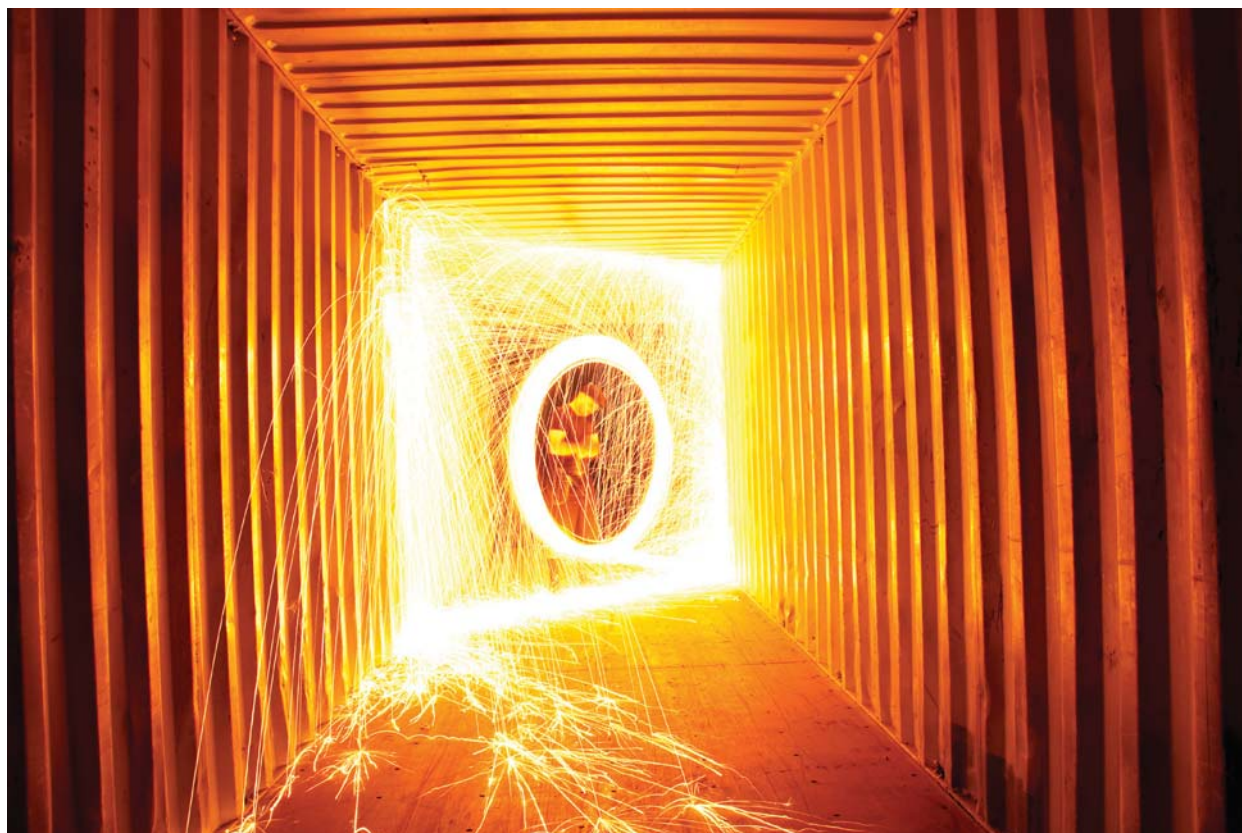
This photo was taken whilst camping near Steep Point, Western Australia. I exposed for the sky and filled in the foreground from various points with my LED torch.



► **Honourable Mention**

Tagged by Luke Smith

Couldn't control the weather, but my trusty little Panasonic FT3 weathered the wild storm. I found this alley the other day when I had to drop my motorbike off for repairs and walked to work. It got me inspired to show a different side of Maroochydore.



► Honourable Mention

'Lighting Tuesday night' by Geordie Elliott

## TAKE THE NEXT PHOTO REVIEW CHALLENGE

### Wildlife

We're casting the net widely for our next challenge. Your task is to capture a denizen of the natural world engaged in some interesting activity. A 'denizen' may be anything undomesticated that is bigger than an insect. 'Activity' means just that, engaged in some behaviour (as opposed to perching, sitting, reclining or otherwise resting). It isn't absolutely essential that your subject be native to Australia, but to qualify for this challenge, all animals must be photographed outside any form of captivity. The prize for this challenge is a Kata Revolver-8PL Backpack, RRP \$295, designed to provide easy one-point access to a large range of lenses stored in a revolving internal magazine. It fits a DSLR with grip and standard lens attached, plus 4-5 lenses and accessories, as well as a laptop (up to 15.4 inches) and personal gear.

► Please review the rules below and email your entries to [photochallenge@photoreview.com.au](mailto:photochallenge@photoreview.com.au). Deadline for entries is Sept 26, 2013 and the winning pictures will be published in our Dec-Feb 2014 edition.

### ► HERE ARE THE RULES

To enter the challenge all you have to do is send us your best image (we'll consider up to three images per photographer).

- 1) Competition is open to Australian residents only.
- 2) Entries should only be new images that have been taken in response to the set challenge.
- 3) This isn't a photo manipulation contest, so minimal post-capture processing is a given. Sharpening, colour correction and so forth are fine, but adding extra layers isn't.
- 4) Please supply images as jpegs at 800 pixels on the longest side.
- 5) Please submit all images to [photochallenge@photoreview.com.au](mailto:photochallenge@photoreview.com.au) or preferably to the gallery at [www.photoreview.com.au](http://www.photoreview.com.au) and be sure to enter 'photochallenge' in the tags field. Any questions: please email us at [edmail@photoreview.com.au](mailto:edmail@photoreview.com.au) (Photographers whose work we publish in the magazine will be contacted for the high-resolution version of their pictures.)
- 6) Please put your caption(s) in the File Info (metadata area) of your image(s), or with the accompanying message. When saving your images, please change the file name so that it incorporates your first initial and last name and the challenge you're entering (eg, [jsmith\\_chall56.jpg](#)).
- 7) All photographers maintain copyright to their submitted image(s). Photo Review retains the right to publish submitted image(s) in the magazine and on [www.photoreview.com.au](http://www.photoreview.com.au).



# A CLASSIC REBORN

A LEGENDARY PENTAX CLASSIC  
NOW RE-CREATED AS AN ADVANCED  
DIGITAL CAMERA. PENTAX MX1.  
POWERFUL PROCESSOR, BRILLIANT  
LENS. PURE PENTAX. **JUST \$499.**



ITS ANCESTOR WAS ONCE CALLED  
"the finest camera ever developed".

New Pentax MX-1 retains the  
handsome appearance and  
handle-ability of the classic MX.

But now in its digital re-incarnation it boasts  
a new, advanced CMOS and superb optics.  
4x zoom, from wide 28mm to telephoto 112mm  
(film equivalent). Fast 1.8  
lens for low-light shots and  
creative focus effects.  
Flip-up 3" LCD display. 12.7  
megapixels. It looks like a  
classic camera. Because it is.



reddot design award  
winner 2013



**MX-1**

**PENTAX**  
MAKE NO MISTAKE



facebook.com/PentaxSnaps



twitter.com/pentaxaustralia

0' 2221



Clarke Street, Hill End, 1872

A&A PHOTOGRAPHIC CO, WET PLATE GLASS NEGATIVE, ON 4/BOX 9/NO. 18830

Hill End's streets were said to be "kept with an indifference to utility.. that would drive Macadam out". The road directly in front of William Meare's Criterion Store [on the left] covered a test hole sunk by an early prospector and this hole subsided in the winter of 1872 to form a bog. The Sydney Morning Herald 12 September 1872 described the scene. "As regards the mud in Clark-street, I never have heard an exaggeration. No, to Clark-street I will give the palm for mud and the ill manner it is laid out. It possesses three remarkable features, being narrow, crooked, and filthy..."

Digital order no: a2822718

# Pure Gold: The Holtermann Collection

Australia's single most important collection of 19th Century photographic images spent 80 years in a Chatswood garden shed.

By Don Norris



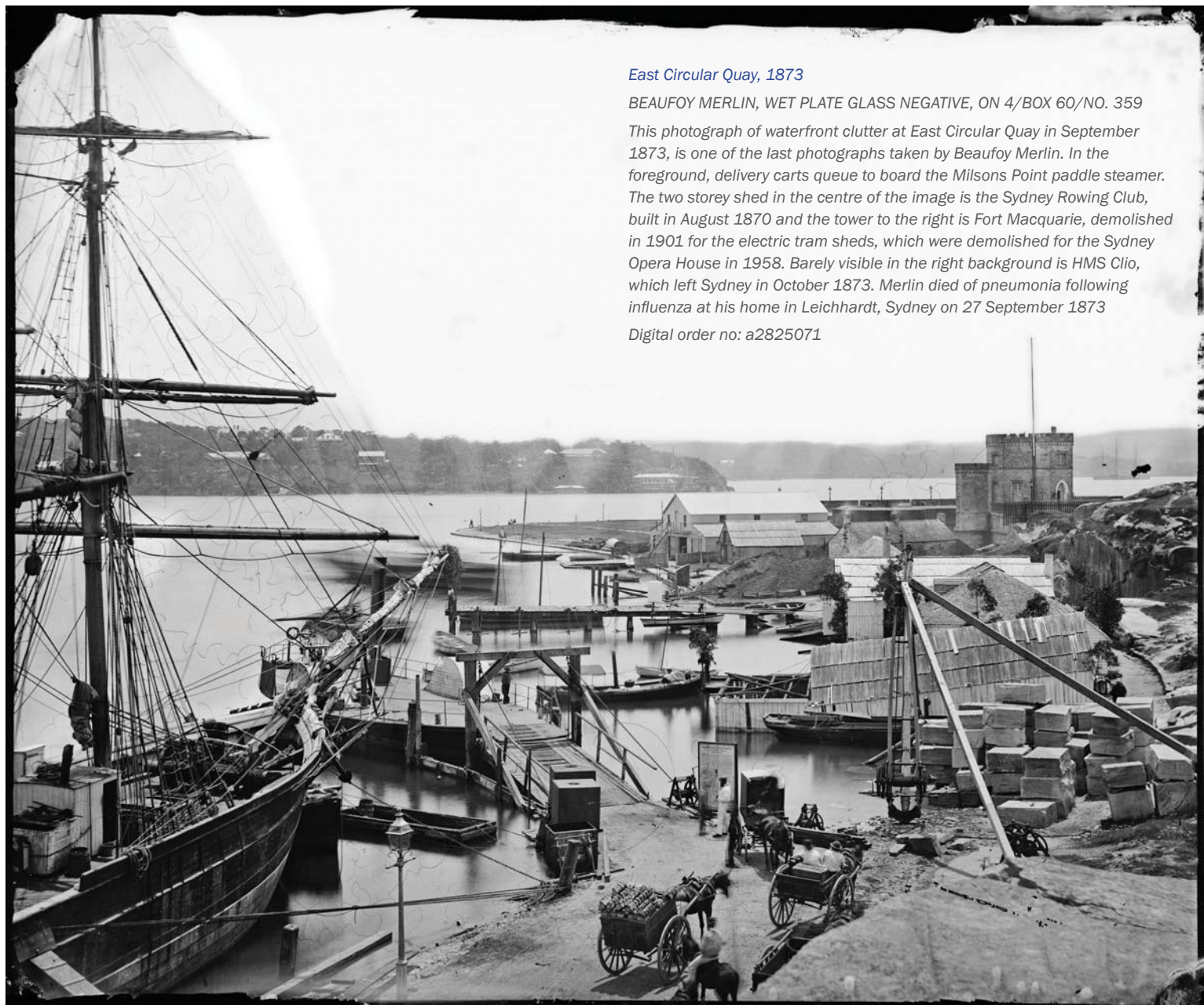


*The A&A Photographic Company, 1872*

A&A PHOTOGRAPHIC CO, WET PLATE GLASS NEGATIVE, ON 4/BOX 8/NO. 18821

The American and Australasian Photographic Company established a studio in Tambaroora Street, Hill End in 1872. Beaufoy Merlin's assistant Charles Bayliss stands, hands in pockets, in the doorway, with studio operator James Clinton behind him. Beside the door is a frame containing large photographic views of Sydney, including the General Post Office and harbour. Among the group of curious miners who have chosen to be part of the tableau is the driver of Merlin's outdoor photographic van, to Bayliss's immediate right. The miners could also have their portrait made in the studio and a standard carte-de-visite is visible in the window, above the boy. For the sartorially challenged, the A&A studio supplied suitable clothing.

Digital order no: a2822709



*East Circular Quay, 1873*

BEAUFY MERLIN, WET PLATE GLASS NEGATIVE, ON 4/BOX 60/NO. 359

*This photograph of waterfront clutter at East Circular Quay in September 1873, is one of the last photographs taken by Beaufoy Merlin. In the foreground, delivery carts queue to board the Milsons Point paddle steamer. The two storey shed in the centre of the image is the Sydney Rowing Club, built in August 1870 and the tower to the right is Fort Macquarie, demolished in 1901 for the electric tram sheds, which were demolished for the Sydney Opera House in 1958. Barely visible in the right background is HMS Clio, which left Sydney in October 1873. Merlin died of pneumonia following influenza at his home in Leichhardt, Sydney on 27 September 1873*

Digital order no: a2825071

We're in the NSW State Library's climate-controlled archives. The low-ceilinged, secure room is filled with row upon row of chest-high cabinets containing the State Library's collection of some 1.5 million photographs. Alan Davies, Curator of Photography for the Library, is standing next to a single wooden case that looks big enough to hold a stack of largish flat screen TVs. However, inside this particular case there are a number of immense glass plate negatives dating from the 1870s. Measuring 900mm x 1600mm, 19th Century glass plate negatives of this size are extremely rare. Sixty years ago these huge plates, along with thousands of others, were stored not in the safety of the State Library's archive room, but in a garden shed in the Sydney suburb of Chatswood.

The massive negatives are part of an extraordinary 3500-image collection and they had been sitting in Mary Holtermann's garden shed for almost 80 years by the time they were

re-discovered in the early '50s. Happily for us, the delicate negatives were stored in cedar and tin boxes which protected them from the vagaries of Sydney's climate.

Credit for the re-discovery of the historical photographic trove goes to one Keast Burke, editor of *Australasian Photo Review* (no relation!). In 1951, Mr Burke wrote to then Mitchell Librarian Phyllis Mander Jones about a name he'd come across while investigating 19th Century panorama photographs. The Librarian told him that Mr Holtermann's daughter-in-law Mary lived in Chatswood, leading him in turn to the momentous discovery in her garden shed.

In 1952, Bernhardt Holtermann's grandson Bernhard donated the Holtermann Collection to the Mitchell Library. For the next two decades Keast Burke researched the negatives' history and in due course it became clear that they were not in fact taken by Bernhardt Holtermann but by two photographers, Beaufoy Merlin and Charles Bayliss.

Taken over a brief period from late 1872 to 1875, the Holtermann Collection, said Alan Davies, 'is one of the most important photographic collections in the country. I should say the most important photographic collection in the country full stop. There's nothing to match it. It's the only internationally significant collection of photographs. It's mentioned in photographic histories overseas because it's so unusual.'

By the time Beaufoy Merlin met Holtermann in the NSW gold mining town of Hill End in late 1872, he'd been working as a photographer for about eight years. He and his young assistant Charles Bayliss had established the modestly named American & Australasian Photographic Company, the self-imposed remit of which was to create a photographic library of street views of towns all across the colonies of NSW and Victoria. It was, arguably, the world's first image bank.

In an advertisement from 1870 (by which time they'd photographed Albury, Yass, Braidwood,

## ‘Although the products of a laborious and inherently variable process, wet plate images are essentially grainless.’

Queanbeyan and Goulburn along with 800 houses in Parramatta), they wrote:

‘The A. and A. Photographic Company desire further to remind the public that these negatives are not taken for the mere immediate objective of sale, but that being registered, copies can at all times be had by or of those parties residing in any part of the colonies wherever the company’s operations have extended, thus forming a novel means of social and commercial intercourse.’

‘What an astonishing thing to say,’ Alan exclaimed. ‘We’re not here taking photographs for the cash, we’re here for people to learn about other parts of the colony. In fact, what they’d done is establish this photographic library, so if you were a businessman and you wanted to set up a new branch in Goulburn, say, you didn’t have to drive all the way there in a horse and buggy, you could go to their studio, pay a shilling and look at every building in Goulburn. You knew exactly where it was on the street, if it was well sited, or on some back street, tucked away.’

‘If you had your business photographed, they’d publish it in 25 places around town – hotels and so on – so that it was advertising for you as well. I think, to be honest, they were a little bit ahead of their time.’

Unfortunately the public response appears not to have been quite proportional to the A. and A. Photographic Company’s ambitions. So, in early 1872 Merlin sold off his Sydney studio and moved to Hill End where, thanks to the discovery of substantial gold deposits in 1851, the economic prospects looked more attractive.

Merlin arrived at Hill End in March and by April had already captured nearly 100

photographs of the goldfields. These attracted some favourable publicity and with Bayliss’s help, Merlin expanded operations to the alluvial goldfields at places such as Canadian Lead and Home Rule.

On October 19, 1872 the 286 kg ‘Holtermann’s Nugget’ was unearthed and Merlin and Bayliss were on hand to record Bernhardt Holtermann striking a nonchalant pose next to the 1.5 metre tall chunk of reef gold. The photographers struck gold too.

Holtermann, said Alan Davies ‘was the benefactor everyone dreams of. The man with very deep pockets who goes along with your ideas and actually comes up with his own ideas. He wants to show Australia off overseas...”look, I’ll give you a bigger camera so you can get bigger pictures.”’

By December 1872, now underwritten by Holtermann, Merlin was engaged in an ambitious project to gather images as well as mineral samples, natural produce, zoological specimens and models of machinery for what they hoped would become a great International Travelling Exposition that would extol the Australian colonies to the world.

Sadly, Merlin would die from pneumonia in September of 1873 and whilst Bayliss continued producing photographs (including the massive plates taken from the tower of Holtermann’s St Leonard’s mansion), the Travelling Exhibition never eventuated.

Although their ambitions weren’t fully realised, thanks to Holtermann, Merlin and Bayliss, this great collection’s unparalleled window into 19th Century Australian colonial life is as enduring a monument as any they might have wished for.

### *August Gondolf, 1873*

A&A PHOTOGRAPHIC CO, WET PLATE GLASS  
NEGATIVE, ON 4/BOX 22/NO. 663

*Five year old August Gondolf poses on his horse tricycle in the studio of the American and Australasian Photographic Company, Hill End in 1873. The image is reminiscent of Claude Monet’s 1872 painting of his son Jean on a similar expensive machine in Argenteuil, a suburb of Paris. Young August was son of miner Peter Gondolf, a partner in the Oxon and Gondolf mine, which was situated on the ridge of Hawkins Hill, just outside the ‘Golden Quarter Mile’. His fashionable sailor suit is topped with the hatband of HMS Cadmus, a 21 gun wooden steam corvette of the British Navy.*

Digital order no: a2823746

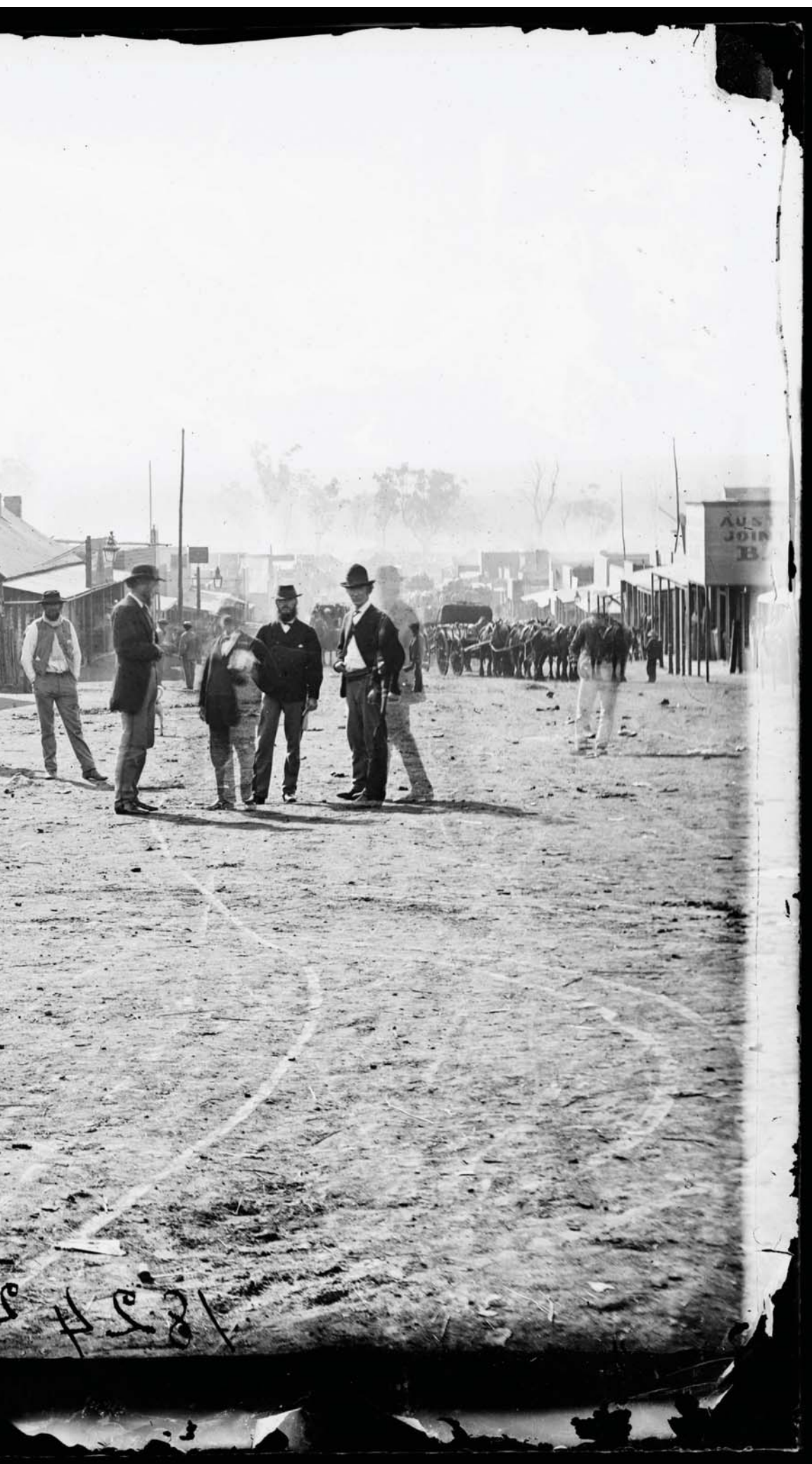
663

INSPIRATION

Forcholl







*Herbert Street, Gulgong, 1872*

A&A PHOTOGRAPHIC CO, WET PLATE GLASS  
NEGATIVE, ON 4/BOX 2/NO. 18242

*The incongruous sight of toy dogs among the rough-and-ready types that inhabited a frontier gold town has been captured in this view of Herbert Street, Gulgong. According to the Empire 28 May 1872 "The streets - so to call the dusty avenues between the rows of shops and Inns - are thronged in the daytime, by much about the same number, though not, apparently by the same sort of persons, as the streets in Sydney. There is not the same bustling activity about them... There are also fewer women amongst them, and fewer well dressed men. The yellow, clay-stained fustian trousers which have never made and never will make acquaintance with the wash-tub, invest the lower extremities of every two men out of three..."*

Digital order no: a2822178



*Daniel Doherty, bootmaker, Gulgong*

ON 4 Box 2 No 18220

This is an unusual image in the Holtermann Collection, because the individuals have changed into their best clothes for a second exposure by the photographer. Here, bootmaker Daniel Doherty in waistcoat and white shirt, with his daughter, son and employees have dressed up for the American & Australasian Photographic Company's operator. Even the dog is posing. An earlier photograph of the same scene in Herbert Street Gulgong, with the same individuals and dog, shows the participants looking more casual in their work clothes. The man on the far right is the manager of Doherty's branch store at Home Rule.

Digital order no: a2822166



*Sam Hand's Boarding House, 1872*

CHARLES BAYLISS, WET PLATE GLASS NEGATIVE, ON 4/BOX 3/NO. 18332

Sam Hand's boarding house was next to a butcher's shop in Home Rule. According to the Gulgong Guardian 13 July 1872, "The irrepressible Chinese have taken the lead in providing restaurants, and are well patronised especially on Sunday, when the patrons have to wait their turn outside." The Gulgong Argus, quoted in the Queanbeyan Age 4 January 1872, told the story of one Chinese boarding house owner being overrun by miners when he advertised roast beef, pork, turkey and goose for Christmas. He needed 10 extra cooks to cater for the 200 who turned up. The newspaper noted, "Five years ago, John's bill of fare would have been despised by these men."

Digital order no: a2822261

*Adelaide Montgomery*  
Adelaide Montgomery, c1872

A&A PHOTOGRAPHIC CO, WET PLATE GLASS  
NEGATIVE, ON 4/BOX 17/NO. 1064

Adelaide Montgomery and her fluffy dog were photographed in the Hill End studio of the American and Australasian Photographic Company. Her father died when she was three and she and her brother were raised by their mother Grace, who was a dressmaker. Adelaide met an unfortunate end in 1892 from an untreated illness, as she belonged to a sect that forbade medical intervention. Her mother omitted to report her daughter's death to the police, declaring that she was "only sleeping till the Lord should awaken her."

Digital order no: a2823342





#### Zooming in

In this detail from the picture below, advertisements in the shop window behind Bernhardt Holtermann are clearly legible - as indeed are minutiae such as his watch fob.

#### Hill End Dispensary, 1872

BEAUFOY MERLIN, WET PLATE GLASS NEGATIVE, ON 4/BOX 8/NO. 18820

Landlord Bernhardt Holtermann and tenant William A Bray stand outside the new brick Hill End Dispensary. Holtermann had a particular fascination with patent medicines, and was proud that he had cured fellow passengers of life-threatening illnesses on his voyage to Australia in 1858, using medicine he had on board. When he retired, he promoted and sold "Holtermann's Life Preserving Drops", which cured everything from toothache to dysentery. His Life Preserving Drops may have been popular, but their efficacy was another matter entirely. In the end, Holtermann died on his 47th birthday in 1885, after 18 months' illness. His doctor recorded the causes of death as 'cancer of the stomach, cirrhosis of the liver and dropsy'.

Digital order no: a2822708

#### How sharp?

In 2009 the State Library began a two-year project to scan every one of the 3500 images in the Holtermann Collection. The smaller plates were scanned at a resolution of 10,000 pixels on the longest side, whilst the larger plates were captured with a 50-megapixel medium format back. For the very largest plates, multiple 50-megapixel images were stitched together to create extremely high resolution digital copies.

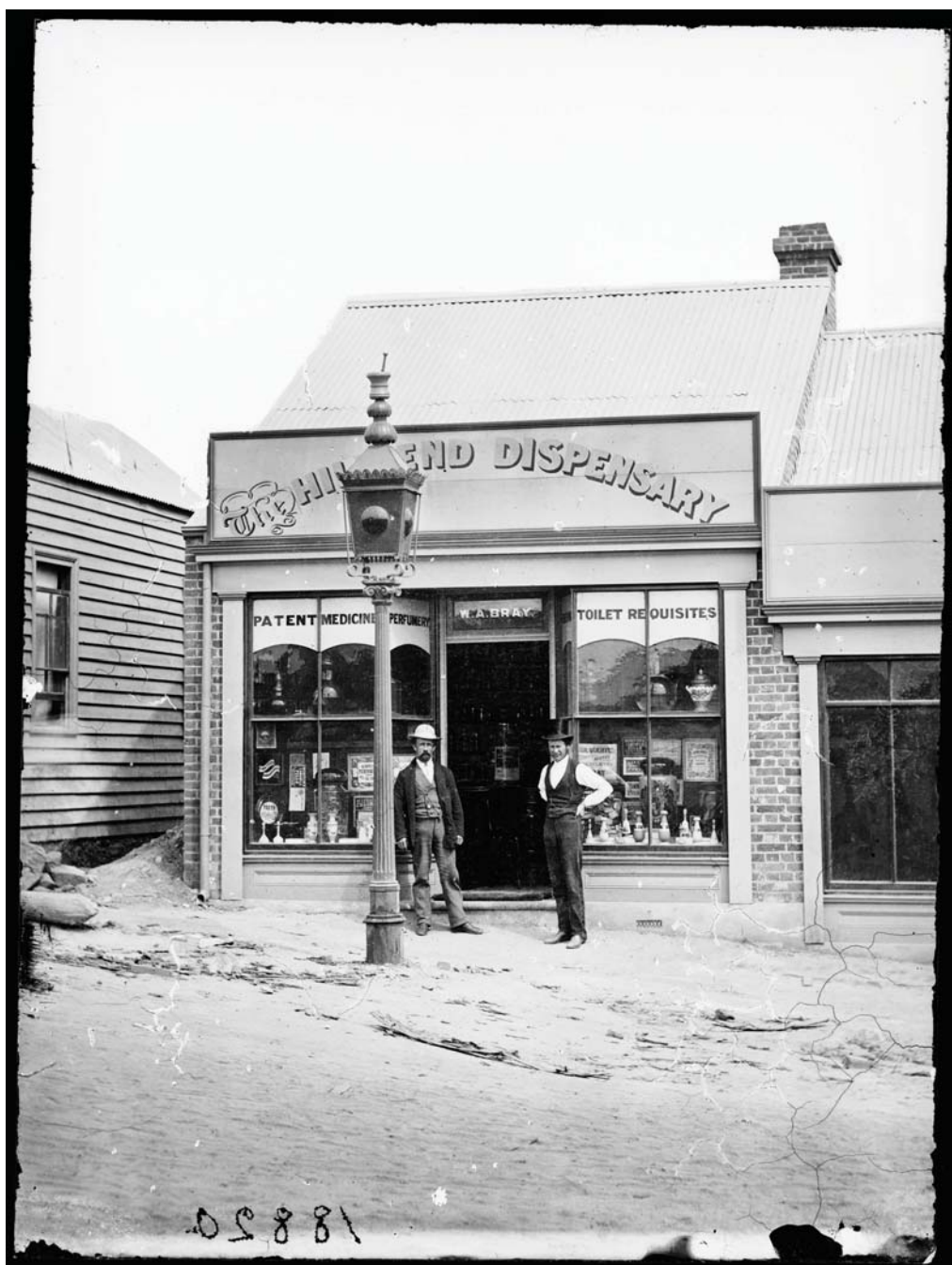
Although the products of a laborious and inherently variable process, wet plate images are essentially grainless. When it comes to image resolution, the limiting factor is the quality of the lens. And thanks to Holtermann's deep pockets, Merlin and Bayliss were equipped with the finest German optics of the day.

When the Library acquired the collection in 1952, they understandably used modern film and printing materials to create copies from the original negatives. Unfortunately wet plate negatives are extremely contrasty and the image density can be quite variable. Printing these negatives on a mid-20th Century paper results in images that are significantly compromised in terms of image quality and information.

High resolution scanning and modern digital printing technology allow us to see detail that has effectively been lost for 140 years. As part of the State Library's *The Greatest Wonder of the World* exhibition of the Holtermann Collection earlier this year, a number of the images were projected on wall-sized surfaces. Even when inspected closely there was no trace of photographic grain.

An astonishing level of detail became apparent as you moved closer to the image. In a photograph of a shopfront taken from across a street, details as fine as the labels on bottles in the shop window can be made out. In a picture of a French man-o'-war in drydock, the amount of intricate detail would keep a marine historian entranced for hours.

► Every one of the 3500 images in the Holtermann Collection may be viewed online by going to the State Library's website at [www.sl.nsw.gov.au](http://www.sl.nsw.gov.au) and searching for American & Australasian Photographic Company. Images with sufficient resolution for school projects may be downloaded directly and a number of the more striking photographs are also available as prints from the Library's shop.





Tim Griffith | 2012 Architectural Photographer Of The Year



Ryan Schembri | 2012 Wedding Photographer Of The Year

*It has recently been suggested that of all the photographs ever taken in the world...*

*10% were taken in the year 2012!*

So how do you stand out from this crowd?

- Tell them you are a professional
- Show them you are a professional
- Demonstrate to them what a professional can do

**aipp** 2013

**Accredited  
Professional  
Photographer**

*Trained, Educated and Skilled as  
a Professional Photographer...*

**Make 2013  
the year YOU  
Join the AIPP!**

[www.aipp.com.au](http://www.aipp.com.au)



Charmaine Heyer | 2012 Illustrative Photographer Of The Year



Jonelle Beveridge | 2012 Family Photographer Of The Year



Kelly Brown | 2012 Creative Photographer Of The Year



*Jasper Roads, Phoebe Ayla, Kahlia Litzow and Grace Athanassiou (L-R) interact with bubbles whilst waiting to see in the first dawn of 2013. Each year thousands of attendees of the Woodford Folk Festival gather on a hilltop to celebrate the New Year.*

# Alive and clicking

Documentary photography is a threatened species, but Lachlan Gardiner is a young practitioner who clearly has what it takes to breathe new life into this challenging field.

By Steve Packer



*Gresham Brown, a Brisbane Indigenous Elder raises his arms in protest, whilst partaking in the 2011 Brisbane 'Invasion Day' march, which is the alternative Indigenous observance of Australia Day.*

## How did you first become interested in photography?

After finishing high school on the Sunshine Coast in 2006, I had no intention of becoming a photographer. I was accepted into a Bachelor of Engineering, but decided to defer that and bought a one-way ticket to New Zealand. Before I left, my mum bought me an 'almost SLR' which was my introduction to using a camera beyond auto mode. I stayed in NZ for about a year, worked in the cycling industry and enjoyed taking travel photos.

After returning, the engineering studies didn't excite me any more, so I hunted around and discovered the Bachelor of Photography at Griffith University's Queensland College of Art.

I moved to Brisbane and really didn't know what I was getting myself into. I just thought it would be fun and creative. I soon discovered visual storytelling and developed a social conscience through doing the documentary and photojournalism side of things. After four years, I graduated in 2012 [with a Bachelor of Photography (Photojournalism and Documentary Practice) with first class Honours].

## Did you hit the ground running or gradually become more enthused in your studies?

I'm a visual sort of person and I like the way photography combines the visual, creative side with the technical. I've always been very technically minded – from playing with Lego at a

young age, to doing woodwork on the farm with my dad, to studying maths, science and physics at school, to briefly being a cycle mechanic.

I was always keen at uni, but didn't know where I wanted to be as a photographer for the first year. It was a university field trip to Cambodia and Vietnam at the beginning of my second year that cemented my passion for the documentary side of things. It was my first time in Asia, and working with non-government organisations opened my eyes to extreme poverty and how the majority of our world lives. Since then, I've mingled my studies with working freelance, combining commercial work with documentary/photojournalism. As is well known, it's challenging to make a living solely from documentary photography.



*Indigenous Elders lead a procession to officially open the 2011-2012 Woodford Folk Festival, which is held annually in southeast Queensland.*

### **Who and what have been the main influences on your photography?**

I'm a product of my surroundings as well as my influences. Clear influences have been my lecturers, teachers and fellow students, and I've done a lot of reading and looking at the work of Australian and international photographers.

It's a long list, but more recently Eugene Richards has been a big influence. He's covered a lot of lesser-talked-about issues in the United States since the 1960s. In particular, his most recent project, 'War is Personal', looking at the ongoing effects of the Iraq War on US veterans and their families, has had an impact on me. In my honours year I started doing something

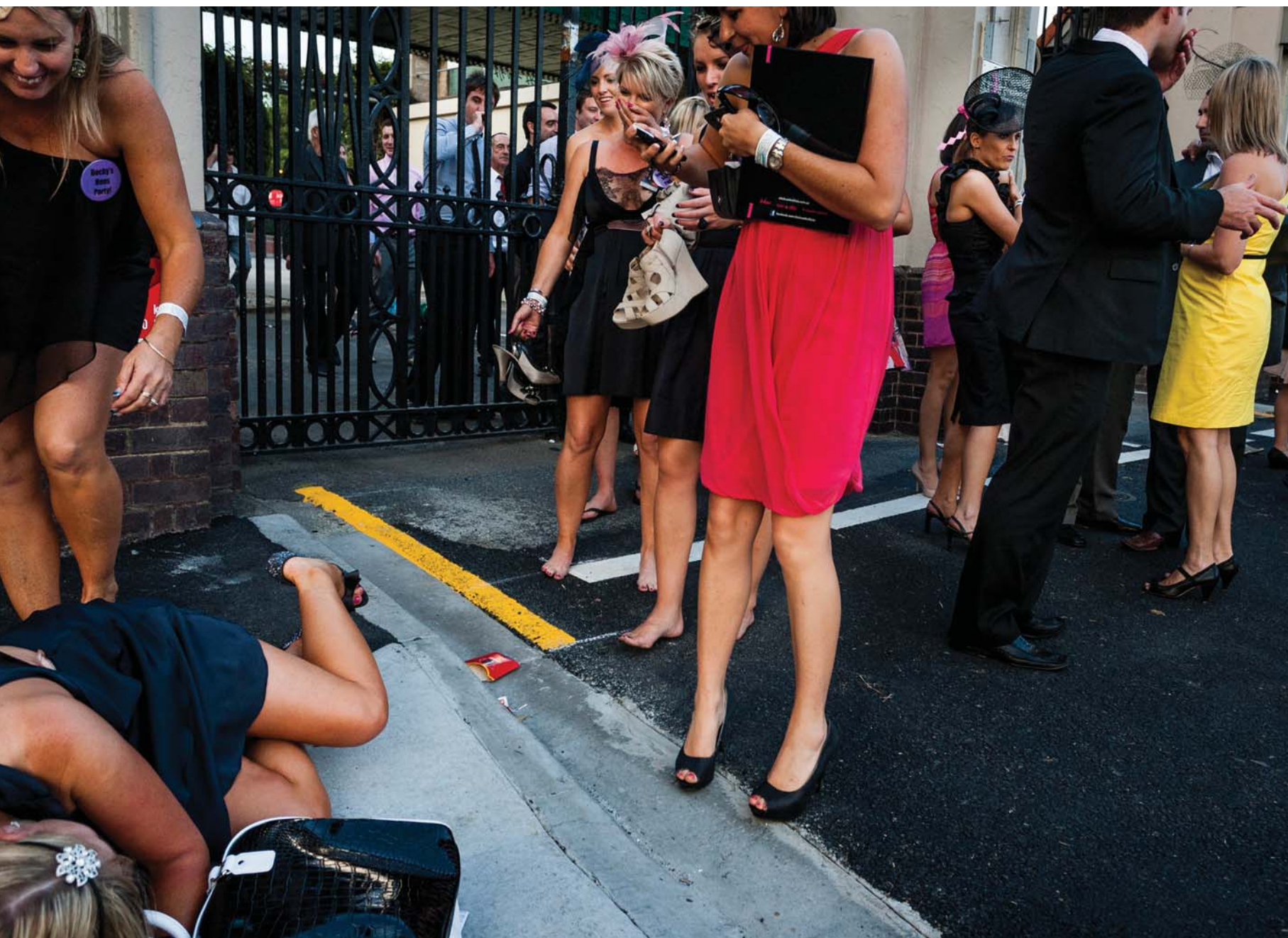
similar about Australian war vets and their families, and I'm continuing with that.

There are a lot of historical references I use, but I try to combine that with more contemporary influences. Ed Kashi, Ed Ou, Ben Lowy, Dominic Nahr, Jonas Bendiksen... I've been following the World Press Photo contest for a few years. It's a good way to be exposed to work by the big names and some unknowns who make the ranks.

### **Did the degree teach you how to approach documentary photography in a philosophical sense?**

The course is split into three distinct streams – art, commercial and photojournalism/documentary. In the latter, we did news

**'I soon discovered visual storytelling and developed a social conscience...'**



**‘I strive for colourful, dynamic compositions as much as I can. But that style doesn’t always suit the story...’**

photography, photojournalism and documentary, and through all of those there’s an element that covers the morals, the expectations, the politics, the historical aspects. However, to a degree, you’re left to find your own voice as a storyteller. To be ethically comfortable with what you are producing is always a challenge. I learnt that having an understanding of the sociological, historical and political foundations to any story or issue is of vital importance.

### **Were you expected to do a lot of assignments and come up with ideas for photo essays?**

Quite a lot. A story close to my heart is ‘Fifteen Years to Jericho’, about Bill, a homeless man who lives at the end of my street. I’d chatted to him over the years, and working with him became part of my third-year graduate project. I tried to focus on Bill as a person instead of photographing ‘an issue that needs fixing’.

I also did an essay on horse racing called ‘Sport of Kings’. I’d never been to the races and had an impression it would be a certain way, but thought I better go and find out for myself. I went to the Doomben and Eagle Farm racecourses and became captivated by the older punters. Initially I held a strong bias against gambling and bookmaking, and there are negatives to it. Upon arriving though, I was astounded by the beauty of watching these old punters come every week and the thought they put into it. For a lot of them it’s additional income to their pension and there’s a real sense of community to the place. It’s a very quiet space punctuated by the loud cheers and a heated feeling when a race is on. I also went

trackside where the younger generations see it more as a party than a sporting institution or historical tradition.

I approached photographing the races more like street photography. I spoke to people, but didn’t seek to tell individual stories. I wanted to capture an overall snapshot of the culture that exists.

### **I think the ‘Sport of Kings’ shots are superbly constructed and timed, with great use of natural light.**

I spent a lot of time watching the light change and going back repeatedly. There are many buildings creating lines, angles and shadows which are certainly a photographer’s friend.

### **What other assignments did you do?**

It’s a long list thinking back... A couple of other highlights are when I went out to Whyte Island where the Queensland Fire and Rescue Service does its rigorous training drills, and to the Queensland Mounted Police stables west of Brisbane. I also enjoy photographing Indigenous communities in Brisbane and rural Australia.

### **What about your Woodford Folk Festival photos? You seem to have an intimate connection with that.**

I’ve been to five festivals and been a volunteer at the last three. It’s visually and culturally very vibrant, and set in a beautiful location, so each year I take my camera and keep adding to a growing collection of photos.

*Opposite page:*

*Top: A patron lies on the sidewalk after tripping whilst leaving the Eagle Farm Racecourse in Brisbane.*

*Bottom left: A punter inspects the horses before a race at the Eagle Farm Racecourse in Brisbane.*

*Bottom right: A group of Patrons brave the rain to cheer the final race of the day at the Eagle Farm Racecourse in Brisbane. An afternoon storm put an early stop to the day’s proceedings.*

## 'I prefer to use prime lenses because it forces me to think more about composition...'

### Do you think you have an individual style as a documentary photographer?

Like anyone, I know I have to strive to develop a point of difference, and I'm not sure I've fully found that yet.

I generally shoot best in vibrant lighting conditions, be it natural or something I create myself – into sunlight, or early and late in the day, or using car headlights or whatever. I strive for colourful, dynamic compositions as much as I can. But that style doesn't always suit the story, and I make an effort to shoot a story in a style that suits it, which can be challenging at times. For example, with the work I've been doing recently with war veterans. It's a quiet, reflective and often traumatic atmosphere. I try to respect and adapt to that.

### What gear do you use?

I've had Canon gear all the way through, for no particular reason. It works well and they have a good range to choose from. I've had an EOS 50D and currently have a 1D Mark III and 5D Mark III.

I prefer to use prime lenses because it forces me to think more about composition and to change perspective and position. I use 24mm, 50mm, 85mm, 135mm – whatever I own or can get my hands on at the time.

### Black-and-white used to be almost standard for documentary photography, but you obviously prefer colour.

I feel that black-and-white still has its place, but for my generation, unless you have a strong and well-considered reason for shooting in black-and-white, colour should be the default.

For me, a lot of emotion, mood, extra information and data, and depth to the story can be added through colour.

I do sometimes use black-and-white for commercial work, where there's a need or expectation. I've started up Ginger and Spice, a separate wedding and portraiture business with my partner, who studied with me through the bachelor and honours. Photojournalistic skills transfer very well to weddings because it's basically all about storytelling.

I've also shot a lot of event and portraiture work for various companies and organisations, architecture for a construction company, sport... When you're starting out, you have to take any opportunity you can get.

► To see more of Lachlan Gardiner's documentary photography, visit [www.lachlangardiner.com](http://www.lachlangardiner.com)



A surfer watches the waves at Teatree Bay, which is nestled within the Noosa National Park in southeast Queensland.



# In 2013 the AIPP celebrates 50 years

## 50 years as the membership organisation of choice for professional photographers.

The world we live in has changed drastically during the last 50 years. Photography has changed radically in the last 50 years and the AIPP has adapted to keep up with these changes.

Throughout the last 50 years, the AIPP has always represented the best interests of its members and the professional photography community.

## Why not make 2013 the year you join the AIPP?

Together we can be stronger...

As an added incentive, to help us celebrate 50 years, if you join the AIPP in 2013 either as an Accredited Professional Photographer, or an Emerging member, we will give you a \$50 voucher which you can use to reduce the cost of attending any AIPP event, seminar, workshop or awards entry fee.

[www.aipp.com.au](http://www.aipp.com.au)



# Bokeh and Depth of Field

Margaret Brown



*Use of a long focal length and a wide distance between the subject and the background ensures attractive bokeh in this shot, even though it was taken with an aperture of f/8, a full stop down from the maximum aperture of the lens. (70-300mm lens at 300mm f/8 on a 'full frame' camera body.)*

## How to capture images with attractive out-of-focus areas.

Whenever you read a lens review, you're almost certain to come across an evaluation of the 'bokeh' of the lens. It's an aesthetic quality that can be difficult to define and quantify. Most definitions refer to the way the lens renders out-of-focus points of light or the 'blur quality' of out-of-focus backgrounds. The term comes from the Japanese word '*boke*' (pronounced bo-keh), which means 'haziness', 'dizziness' or 'confusion'.

Bokeh is generally associated with a shallow depth of field. This is easier to achieve with long telephoto lenses but is also an essential parameter in macro photography. Bokeh can also be important for portrait photography where medium telephoto lenses (typically 85–150 mm in 35mm format) are generally used.

In all these situations, the photographer will normally use a shallow depth of field to focus the viewer's attention on the subject by blurring the background. In most cases, this is achieved with a wide lens aperture, which creates a relatively shallow plane of focus. Background regions become out-of-focus as a result.

The appearance of the background blurring can affect viewers' perceptions of the attractiveness of a photograph. The lens plays a vital role in determining how smoothly background tonality is rendered. Differences in aperture shapes and lens aberrations can cause some lenses to blur out-of-focus areas in a way that pleases the eye, while others will produce blurring that is distracting or unattractive.

The image format, lens focal length, selected aperture, camera-to-subject distance, position of the subject within the scene, and shapes and patterns within the subject can also influence bokeh quality. So can tonal relationships with respect to foreground and background

brightness and colours within the subject.

Backgrounds containing patches of brightness and darkness or strongly contrasting colours can become 'busy' looking, even with lenses that normally produce attractive bokeh.

Similarly, a lens with relatively indifferent bokeh can produce attractive-looking pictures when the background to the subject is evenly lit with soft and harmonious tones.

In principle, the best bokeh appears when the subject of the photograph dominates and the bokeh literally 'retreats into the background' and is unobtrusive. When the blurred background elements take your eyes away from the subject of the photograph, the bokeh is classed as poor.

There are a couple of ways to minimise the influence of potentially unattractive bokeh. Filling the frame with the subject is the most straightforward. You can also change your shooting angle to ensure bright highlights are excluded from the background because large contrast differences can make the bokeh appear 'choppy'.

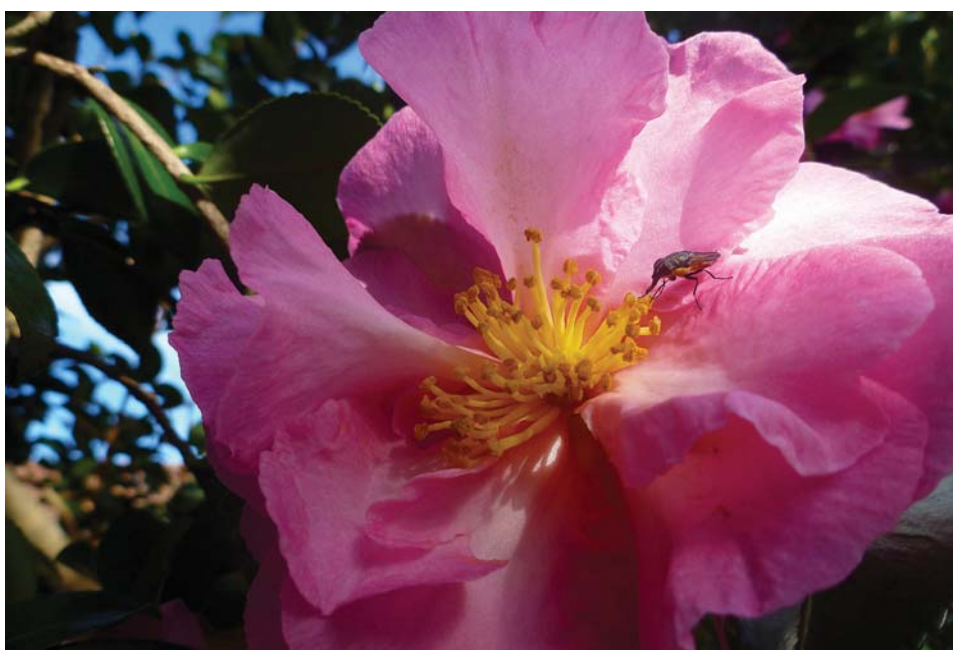
## Bokeh and Lens Design

To understand bokeh you need to know a little about how images are formed so this section will be a bit technical. Each picture element (pixel) is generated when the beams of light passing through the lens aperture combine to form a light cone. The base of this cone is the lens aperture, which can be adjusted to produce exit pupils of different areas.

When the apex (point) of the cone falls upon a pixel in the sensor, the image is focused; when it falls short of or beyond the sensor, it is out-of-focus. The diameter of the cone of light at the point where it becomes a disk instead of a point is known as the 'circle of confusion' or 'blur circle'.



An example of attractive bokeh. Note the smooth tonal transitions in the blurred background areas that enable the viewer's eyes to concentrate on the main subject. (70-300mm f/4.5-5.6 lens at 300mm f/5.6 on a 'full frame' camera body.)



It is almost impossible to achieve attractive background blurring when you shoot with a small-sensor digicam, even though the lens can focus very close to the subject. (5mm focal length, f/3.3.)



Outlining of the blur circles can indicate the lens suffers from longitudinal chromatic aberration. (24-105mm f/4 lens at f/4, 73mm focal length.)



Filling the frame with the subject can minimise the influence of the background, particularly when the subject is five metres or more in front of the background. (75-300mm f/4.8-6.7 lens at 171mm f/8 on an M4/3 camera.)



A harshly-lit background created the choppy bokeh seen in this image. Even though the subject was many metres in front of the tree behind, the contrasty background could not be defocused enough at the aperture used to produce smooth bokeh. (75-300mm lens at 210mm f/5.6 on camera with an APS-C-sized sensor.)

## Artificial Bokeh

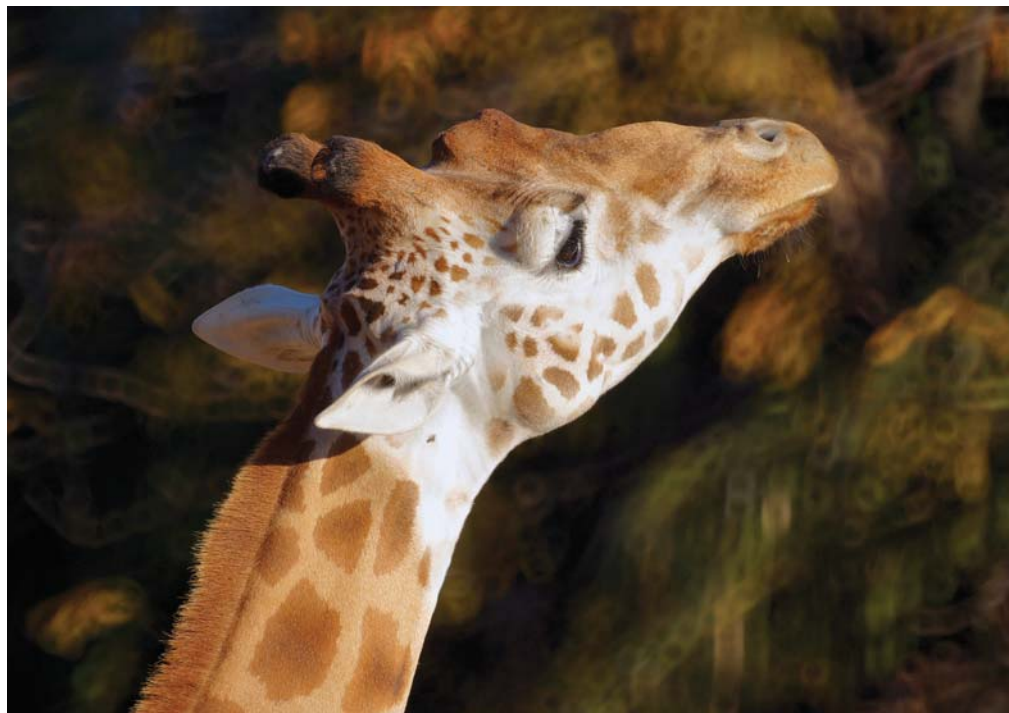
Many recently-released cameras provide an in-camera effect that simulates background blurring. Some cameras can produce quite attractive results; others less so. In most small-sensor digicams and camera-phones, background blurring is achieved by moving the lens and sensor together while keeping focus on the subject. The end result looks more like motion blur than 'proper' bokeh.

Several image editors provide tools for producing background blurring. But most involve complex mathematical adjustments. The best simulations are produced by techniques like Gaussian blurring, which requires a fair bit of processing power and is never as effective as the real thing.

The Lens Blur tool in Photoshop can be fraught with difficulties because the inherent bokeh of the lens will influence the way the blurring is applied. An oval blur point will remain oval unless you smear out the background completely (which will create an unnatural result). It's simpler and you'll end up with more satisfying images if you get a lens with good bokeh and learn to use it effectively.



A photograph taken with the 'Flower' setting in the Scene modes in a compact digicam, which creates artificial bokeh by choosing a wide lens aperture, masking the subject from and defocusing the background.



Catadioptric (mirror) lenses are often criticised because they can produce donut-shaped highlights in out-of-focus backgrounds. (500mm f/8 reflex mirror lens.)

In a perfect lens, blur circles should have sharp edges and even illumination. Real lenses are never perfect (although some can come close). Spherical aberration will cause light to be unevenly distributed within the cone and produce different intensity across the circle and, when attempts are made to correct it, they often compound the problem instead of solving it.

Chromatic aberration (particularly longitudinal CA) can produce rings around the boundaries of blur circles. The shape and number of the diaphragm blades in a lens define the shape of the blur circle but otherwise have no effect on bokeh. Shoot through a cut-out star shape or triangle and you will see how the shapes of blur circles are affected.

The reason some manufacturers try to create relationship between bokeh and diaphragm blades is because this can create a point of difference between lenses. Myth has it that nine blades produce superior bokeh, but that's simply not the case. However, if the blades close to a circular aperture, they will produce genuine blur circles, regardless of the number of blades (although the more blades the easier it is to approximate a circular aperture).

## Seeing Bokeh

If you want to check the bokeh of a lens, set it to the maximum aperture and focus it on a distant light source, such as a street lamp at night in a reasonably well-lit area where you can discern details in the surrounding area. Scan

the scene, looking at out-of-focus areas.

Now adjust the focus moving between a point in front of the light through to one behind the light and check how the rendition of the out-of-focus areas changes. If you see soft-edged shapes, you have good bokeh; if there's a noticeable difference in sharpness or brightness between one side of the shapes and the other or if you can see outlining of the shapes, the bokeh is inferior.

Practice looking for bokeh when you're watching TV or viewing movies. The shapes of the blur circles can tell you a lot about both the bokeh of the lens and the type of lens that was used.

The best bokeh comes when all the blur circles blend together attractively. When they appear as regular polygons, the number of points corresponds to the number of blades in the iris diaphragm. (Note: odd numbers of blades can produce twice as many points as the number of blades while even numbers of blades always produce the same number of points.)

If the blur circles are circular around the centre of the frame but oval towards the edges, the scene was probably shot at full aperture. If they are vertical ovals roughly twice as tall as they are wide, it was shot with an anamorphic lens for cinemascope projection.

# SUBSCRIBE AND SAVE

Have Photo Review magazine delivered to your door for just \$39 per year.



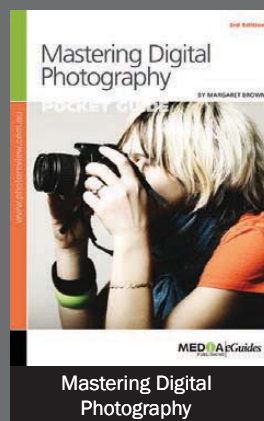
## Photo Review Pocket Guides



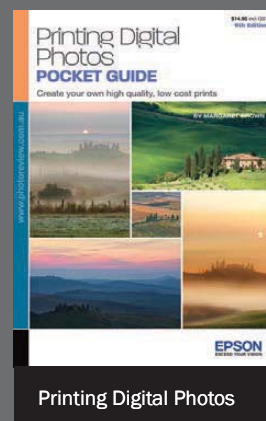
Digital SLR



Post-capture



Mastering Digital Photography



Printing Digital Photos

For details on Photo Review Pocket Guides see [www.photoreview.com.au](http://www.photoreview.com.au)

Complete the form below or call (02) 9948 8600 or subscribe online at [www.photoreview.com.au](http://www.photoreview.com.au)

### Photo Review Magazine: Subscription

- ☐ 1-year (4 issues) \$39 ☐ 2-year (8 issues) \$70

### Photo Review Magazine: Back Issues

- ☐ \$10 per single issue order, OR  
☐ \$45 for 6 issues, OR  
☐ \$95 for 12 issues ☐ \$200 for 30 issues

Please select back issues (for details on each back issue go to [www.bit.ly/phr-back-issues](http://www.bit.ly/phr-back-issues)):

- |                                  |                                   |                                   |                                   |                                   |                                   |                                   |
|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Issue 1 | <input type="checkbox"/> Issue 9  | <input type="checkbox"/> Issue 17 | <input type="checkbox"/> Issue 25 | <input type="checkbox"/> Issue 33 | <input type="checkbox"/> Issue 41 | <input type="checkbox"/> Issue 49 |
| <input type="checkbox"/> Issue 2 | <input type="checkbox"/> Issue 10 | <input type="checkbox"/> Issue 18 | <input type="checkbox"/> Issue 26 | <input type="checkbox"/> Issue 34 | <input type="checkbox"/> Issue 42 | <input type="checkbox"/> Issue 50 |
| <input type="checkbox"/> Issue 3 | <input type="checkbox"/> Issue 11 | <input type="checkbox"/> Issue 19 | <input type="checkbox"/> Issue 27 | <input type="checkbox"/> Issue 35 | <input type="checkbox"/> Issue 43 | <input type="checkbox"/> Issue 51 |
| <input type="checkbox"/> Issue 4 | <input type="checkbox"/> Issue 12 | <input type="checkbox"/> Issue 20 | <input type="checkbox"/> Issue 28 | <input type="checkbox"/> Issue 36 | <input type="checkbox"/> Issue 44 | <input type="checkbox"/> Issue 52 |
| <input type="checkbox"/> Issue 5 | <input type="checkbox"/> Issue 13 | <input type="checkbox"/> Issue 21 | <input type="checkbox"/> Issue 29 | <input type="checkbox"/> Issue 37 | <input type="checkbox"/> Issue 45 | <input type="checkbox"/> Issue 53 |
| <input type="checkbox"/> Issue 6 | <input type="checkbox"/> Issue 14 | <input type="checkbox"/> Issue 22 | <input type="checkbox"/> Issue 30 | <input type="checkbox"/> Issue 38 | <input type="checkbox"/> Issue 46 | <input type="checkbox"/> Issue 54 |
| <input type="checkbox"/> Issue 7 | <input type="checkbox"/> Issue 15 | <input type="checkbox"/> Issue 23 | <input type="checkbox"/> Issue 31 | <input type="checkbox"/> Issue 39 | <input type="checkbox"/> Issue 47 | <input type="checkbox"/> Issue 55 |
| <input type="checkbox"/> Issue 8 | <input type="checkbox"/> Issue 16 | <input type="checkbox"/> Issue 24 | <input type="checkbox"/> Issue 32 | <input type="checkbox"/> Issue 40 | <input type="checkbox"/> Issue 48 |                                   |

### Photo Review Pocket Guides:

- ☐ Digital SLR (3rd Edition) \$29.95 ☐ Post-Capture \$19.95  
☐ Mastering Digital Photography (3rd Edition) \$19.95  
☐ Printing Digital Photos (6th Edition) \$19.95

All prices include 10% GST and delivery within Australia.  
 International: please add \$15 per delivery outside Australia.

Total order \$ \_\_\_\_\_ ☐ Gift from: \_\_\_\_\_ Phone: \_\_\_\_\_

☐ Extend existing subscription

Subscriber Name \_\_\_\_\_

Address \_\_\_\_\_

Phone \_\_\_\_\_

Email Address \_\_\_\_\_

Please make cheques payable to Media Publishing (ABN 86 099 172 577) or fill out your credit card details below.

Credit Card #

Name on card \_\_\_\_\_

Expiry

Type of card

CCV

Signature \_\_\_\_\_

If you'd like to receive the Photo Review Free Email Newsletter please tick here ☐

If you'd like to occasionally receive photography-related product information please tick here ☐

Please send completed form to:  
 Media Publishing, Reply Paid 78202, CLONTARF NSW 2093

No postage stamp required if mailed within Australia.

# Sharpness, Acutance and Resolution

Margaret Brown

How these important parameters affect the appearance of your photos.

This Insider is a follow-up to one we published in Issue 46 about reading lens manufacturers' Modulation Transfer Function (MTF) graphs. We felt many readers would welcome a more detailed explanation of how these key parameters work (and interact) to influence our perception of image sharpness, whether it be in a printed photograph or an image displayed on a monitor screen.

First, some definitions.

**Sharpness** is quite difficult to define precisely because it's based on subjective evaluations, which are influenced by the contrast along edges in a photo. This characteristic is known as '**acutance**'. We judge an image to be sharp when the edge contrast differences we see are relatively large.

While any photographer can recognise a sharp image, we often disagree about how sharp that image is. Different individuals perceive sharpness differently – and each person will make a different assessment of the sharpness of an image at different times.

Perception may be more acute first thing in the morning before the eyes become tired – or in the middle of the day when the brain/eye interface is at its most efficient. Assessments can also be biased by the evaluator's pre-

conceptions. We all know instances of people who have rated large and medium-format prints higher than prints from cameras with 36 x 24mm (or smaller) imaging areas, when that may not be the case.

Sharpness also varies with different subjects – as do our expectations of what should appear sharp. We generally expect landscapes and shots of buildings to be sharp edge-to-edge but are much more forgiving for portraits and close-ups.

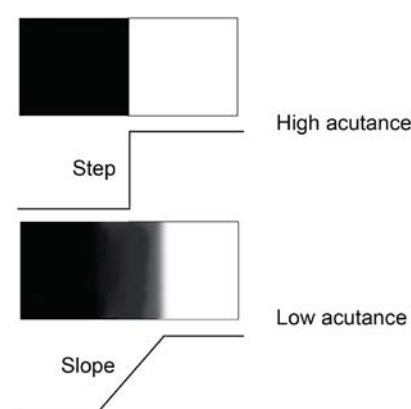
'Soft' (unsharp) images can be aesthetically satisfying in many cases and images in which only part of the frame is sharp can be pleasing to many viewers' eyes. You can read more about the importance of 'bokeh' (the quality of the blurring in unsharp areas in an image) in the special feature on pages 36-38.

Whereas perceived sharpness is a combination of resolution and acutance, only one of these parameters can be adjusted by photographers. Captured resolution is defined by the sensor, lens and focus in the image and can't be changed. But acutance can be adjusted in post-capture processing.

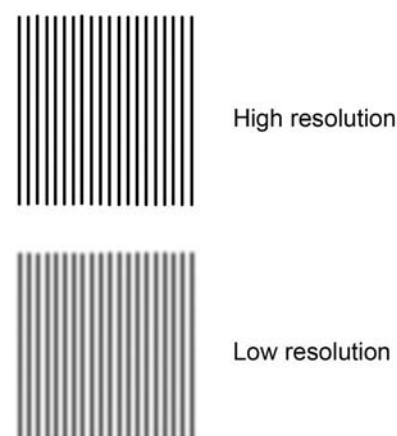
People tend to judge images with higher acutance as being sharper, even though this is not necessarily associated with higher resolution. By increasing tonal differences along edges in an image, we can make it *appear* sharper, even though the actual resolution of the image may be reduced. This is how unsharp-masking works. (See right.)

**Resolution** defines the amount of detail in an image, regardless of how it was captured. Of the three qualities we're looking at, resolution is the only one that is quantifiable (measurable).

Resolution can be measured in several ways. The most common method when assessing lenses is to look at how well the capture device (camera + lens) can separate closely-spaced lines. Tests of *spatial resolution* record the number of **line pairs** (each consisting of one



*The diagrams above show the differences in high and low acutance. In images with high acutance, the transitions between contrast boundaries is sharp and details have clearly defined borders. Transitions are blurred in images with low acutance, leading to a perception of lower sharpness.*



*Resolution is a measurement in lines per millimetre, of the smallest details a lens can resolve. The parallel bars in the top diagram are easily separated into pairs of black and white lines, providing an example of high resolution. Differences in the line pairs are blurred in the lower diagram, which can occur when a low-resolution lens is used.*



*An example of a subject and treatment (wide-angle of lens) that viewers would expect to be sharp edge-to-edge.*



An image straight from the camera is often slightly unsharp due to colour interpolation based on the Bayer filter overlaying the sensor.



Increasing contrast can create an impression of greater sharpness.



Unsharp masking at the editing stage increases image sharpness by boosting acutance (edge sharpness).

black line and the adjacent white space) within a millimetre width. A resolution 10 lines/mm means five black lines alternating with five white lines, or five line pairs per millimetre (lp/mm).

When looking at digital images (and camera sensors), the term *resolution* is often used to define the size of the pixel array. Thus, a camera that can produce images with a maximum resolution of 5184 x 3456 pixels has a 'resolution' of 18-megapixels. (This is derived by multiplying pixel columns by pixel rows and dividing by one million.)

For printing and monitor viewing, *resolution* usually refers to the number of pixels per unit length. Images that will be printed usually require a resolution of 300 pixels per inch (ppi). Computer and TV screens can typically only handle 72 to 100 lines per inch, corresponding to pixel resolutions of 72 to 100 ppi. Both will down-sample higher-resolution images.

## How Sharp?

Can an image contain too much perceived detail? Most definitely. Some subjects need to be reproduced with lots of detail; landscapes being a prime example. They are usually photographed with wide-angle lenses, and

here we can apply a simple rule-of-thumb: the wider the angle of view, the more detail is required in the picture. Don't be afraid to close the lens aperture down to the point at which diffraction begins to reduce resolution (usually somewhere between f/8 and f/16) when shooting with a wide-angle lens.

For portraits and close-ups, the situation changes and it becomes important to highlight the key feature of the subject, allowing backgrounds to blur out so they don't engage the viewer's eye. In portraits of living creatures (people included), the sharpest focus should be on the eye nearest the camera. The lens can be stopped down to keep the rest of the face acceptably sharp, provided the background is suitably de-focused.

In macro photography you must make a fine judgment between how much of the subject you want to render sharp and the degree of background blurring. Because depth of field is reduced as you move closer to a subject, you may need to stop down to f/8 to achieve acceptable sharpness across the subject.

Image noise may be very fine and have a very high acutance, which makes you think sharp

detail is present. However, applying noise-reduction processing will often soften image details. Careful judgment is required when applying noise-reduction processing to shots captured at high ISO settings.

Sharpness is also influenced by viewing distances. Images can look quite sharp when viewed from several metres away yet have relatively low resolution when viewed close-up. This can have a bearing on the amount of post-capture sharpening the image can tolerate before it begins to look artificially sharpened.

## Post-Capture Sharpening

All digital images are slightly unsharp because of the way colour photographs are captured. The Bayer filter in front of the sensor produces red, green and blue signals that must be combined by interpolation to produce the colour image. This reduces image sharpness.

Although many cameras allow photographers to apply sharpness processing to JPEG files immediately after they are captured (and some do it by default), we counsel against it because you have very little control over the type and degree of sharpening applied. It's better to sharpen when the image file is edited.

Minor softening from Bayer interpolation is easily corrected with unsharp masking. The process works by boosting contrast differences along edges in the image, thereby increasing acutance. The image **looks** sharper as a result.

Unsharp masking (and most other sharpening tools) work globally across the entire image area. For times when you don't want everything to be sharpened, a sharpening brush allows you to apply sharpening to small areas of the image. It also works by increasing local contrast differences.

Some other adjustments can be used to make images appear sharper. Increasing contrast will often enhance the viewer's perception of sharpness, particularly when much of the image is unsharp. Increasing saturation may cause bright, pure colours to appear sharper than adjacent monochrome detail.

## MTF and Sharpness

As we explained in the previous article, MTF (modulation transfer function) is a measurement of the relationship between resolution and contrast. The closer the 10-lines/mm curve is to 1, the higher the contrast and the better the ability of the lens to separate the line pairs. The closer the 30-lines/mm curve is to 1, the better the resolving power and sharpness of the lens.

If the MTF graph for a lens shows the 10-line/mm curve to be greater than 0.6 it's considered a satisfactory performer. Lenses for which the 10-line/mm curve is greater than 0.8 deliver excellent image quality.

In theory, a perfect lens should be able to transmit all the light that passes through it and resolve all the black and white line pairs with neither blurring nor a loss of contrast. But, even the most expensive lenses aren't perfect and most MTF graphs show lines that tend to curve downward as they move left to right as they track resolution from centre to corner of the frame.

MTF graphs can also be used for evaluating the potential bokeh of lenses (ie, their ability to produce smooth blurring in out-of-focus background areas). The closer together the sagittal (S) and meridional (M) lines are to each other, the smoother and more natural the background blurring (bokeh) becomes.

# Correcting Images with Curves Adjustments

Margaret Brown

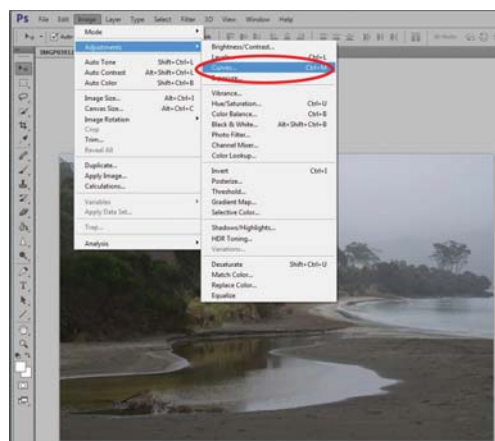
Using the Curves tool in your image editor to adjust image tones and contrast.

Whereas the Levels adjustment tool in image editors is a global adjustment that acts across the entire image, when you need to tweak tonality in one sector of an image, the Curves tool is the one to use. It lets you adjust points within an image's tonal range. To apply a Curves adjustment, do one of the following:

- Click on Curves in the Image > Adjustments panel.
- Choose Layer > New Adjustment Layer > Curves. Click OK in the New Layer dialog box.

The adjustment process is based upon a graph in which the horizontal axis represents the input levels (original image values) while the vertical axis represents the output levels (new adjusted values). The 'shape' of the tones within the image is represented as a shadowed area on this graph.

The image we have chosen has a restricted tonal gamut, which can be extended by drawing out the ends of the tonal graph on the Input axis. This sets the black and white points (pure black and pure white values) in the image. The Input value changes as you drag.



Selecting the Curves control in Photoshop.

## Tonal Adjustments with Curves

Clicking on the diagonal line allows you to select the tonal area you wish to adjust and also anchors the tones at the point selected. It's a good idea to start by anchoring at least three points on the diagonal to cover shadows, mid-tones and highlights. You can add up to 14 control points to the curve.

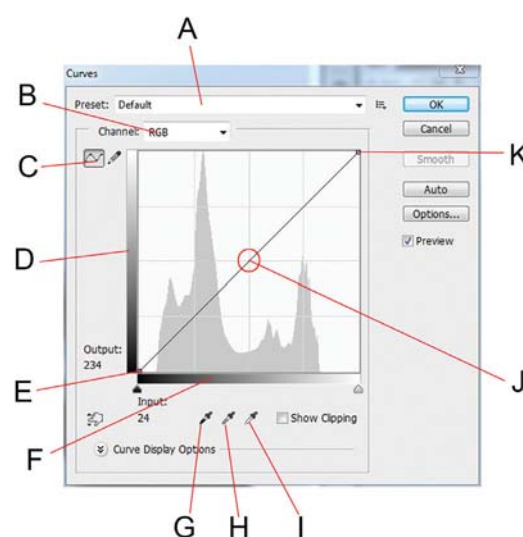
Points on the curve remain anchored until you move them, allowing you to adjust one tonal area without affecting other areas. To remove a control point, simply drag it off the graph.

Moving a control point in the right side of the curve will adjust the highlights. Moving a point in the centre of the curve adjusts the mid-tones and moving a point in the left section of the curve adjusts the shadows. Dragging a control point up or down lightens or darkens the tonal area you're adjusting.

Adjustments can also be made by clicking on a point on the curve and entering numerical values in the Input and Output text boxes. Alternatively, you can select the pencil icon and draw a new curve over the existing one. To even out irregularities, click the Smooth the Curve Values icon to smooth the curve you drew.

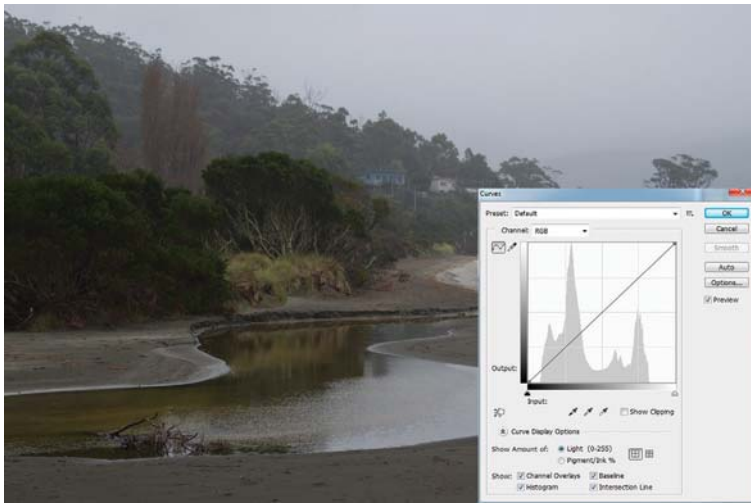
Dragging a control point left or right increases or decreases the contrast in the selected tonal area. The image we've chosen is rather flat so we will boost the contrast in the middle tones by dragging the mid-tone point (circled) to the left.

Adding points as you go allows you to make subtle adjustments to brightness and contrast and turn a flat, uninteresting image into one with the tonal range you wish to present to viewers.

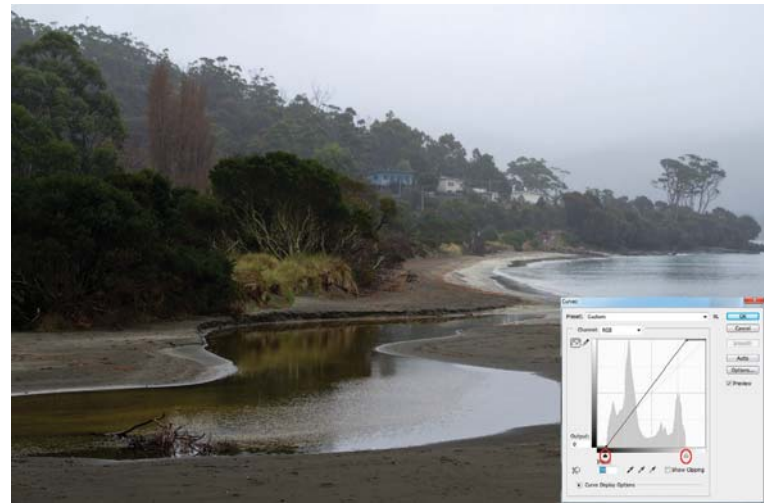


The Curves dialog box.

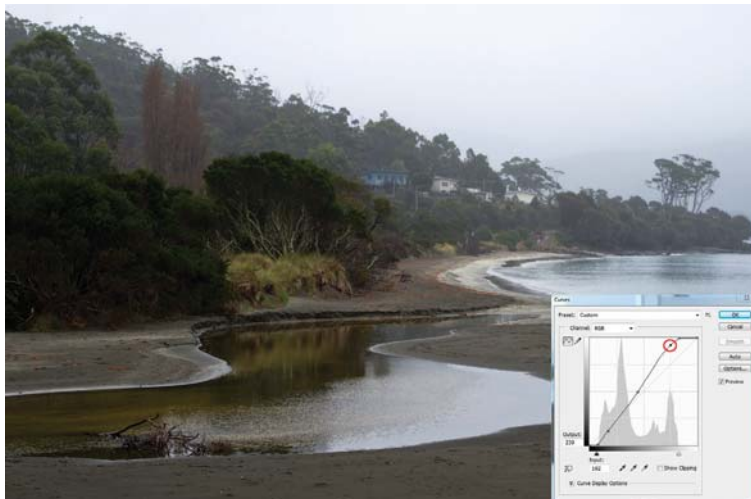
- A. Curves presets dropdown menu
- B. Channel selector. (The Curves adjustment can also be applied to CMYK, LAB, or Greyscale images. For CMYK images, the graph displays percentages of ink/pigment. For LAB and Greyscale images, the graph displays light values.)
- C. Edit points to modify the curve.
- D. The output levels axis.
- E. The black point.
- F. The input levels axis.
- G. Sample in image to set black point.
- H. Sample in image to set grey point.
- I. Sample in image to set white point.
- J. Set grey point.
- K. The white point.



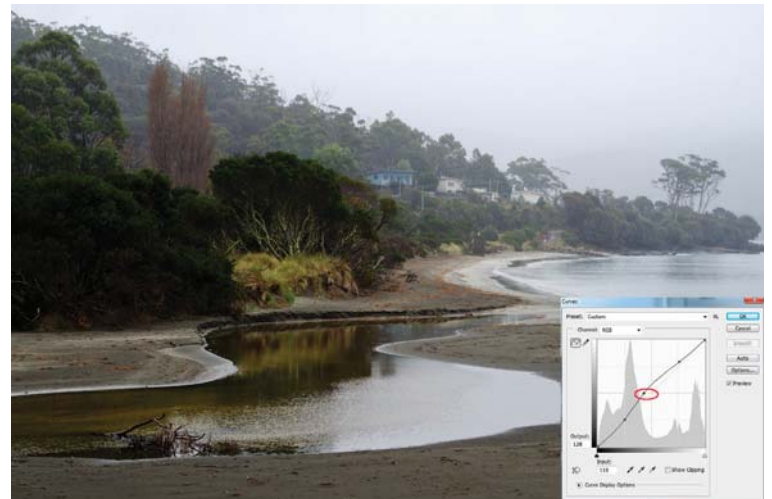
An unedited image with the Curves dialog box superimposed.



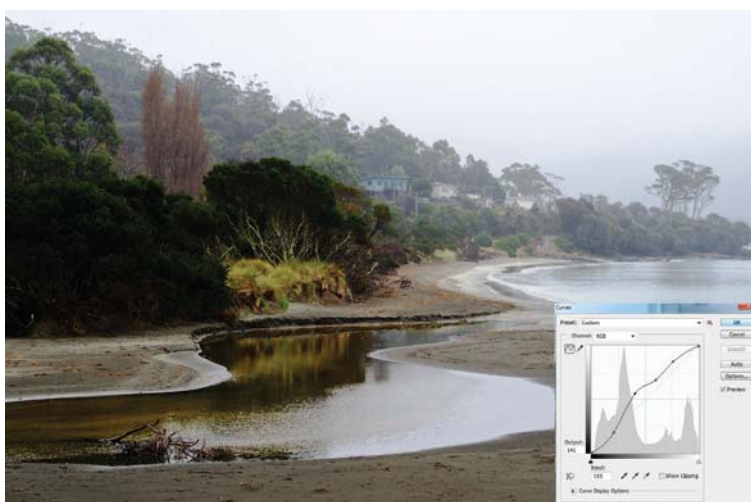
Moving the arrows on the input levels axis (circled in red) in to meet the ends of the image's tonal graph increases the overall contrast in the image.



To lighten highlights, move a point near the top of the curve upwards. (Moving it down will darken them.)



Dragging the mid-tone point (circled) to the left increases contrast in the middle tones without affecting the highlights or shadows.



The inset Curves graph shows how control points have been added to enable the contrast in the shadow areas to be increased slightly, while the contrast in the lighter mid tones is reduced to emphasise the misty atmosphere in the scene.

# Printing Photos with a Laser Printer

Margaret Brown

How to get good-looking photo prints from a colour laser printer.

Conventional wisdom says laser printers shouldn't be able to produce decent-looking photo prints. After all, they use only four colours and they're designed for productivity; not reproducing tonal nuances. But when I needed a couple of prints in a hurry and my monitors weren't profiled, a colour laser printer was at hand and switched on, so I decided to use it.

To my surprise, it delivered photo prints that were good enough to surprise friends and colleagues with printing expertise. The secrets of success lie in understanding the printer's limitations, setting up the printer correctly and using the right printing paper. We'll cover these factors in this feature.

## Image Choices

You can print both colour and monochrome images, covering subjects as different as landscapes, portraits and interiors. However, some image types produce better results than others. We obtained the best-looking prints from images with plenty of detail and bright, vibrant colours.

Images with subtle tonal nuances are more difficult to print well, partly because laser printers tend to boost contrast but also because it is more difficult to reproduce subtle transitions in pastel hues with a four-colour printer.

Monochrome prints made with the B&W setting were free of colour casts but different printers reproduced our original with different densities. One printer (the Canon) lightened the image by approximately 10%, while another (the Samsung) darkened it by roughly the same amount. Monochrome prints made with the colour setting always had colour casts. Some were slight enough to overlook but others were quite obvious.

## Laser Printers' Limitations

Conventional consumer colour laser printers transfer powdered toner to receiving paper, using an electrostatic process. Heat bonds the toner to the paper. The resolution of the resulting print is decided by how finely the powdered colours have been ground and the settings used in the printer driver.

Powder toners have a couple of advantages: they don't dry out if the printer isn't used for a while and they also produce very sharp printed text and deep, rich blacks. Toners come in generous packs, which means you don't need to keep changing cartridges (as you do with a

consumer inkjet). Laser printers are faster than inkjets – and also cheaper to run.

However, they only use four toner colours: cyan, magenta, yellow and black. These are the traditional CMYK colours of commercial printing and their tonal gamut is less than that of modern inkjets with six or more colours.

It's not really fair to compare the output colours of a laser printer with the colours and tonal subtlety produced by a six-or eight-colour inkjet. A fairer comparison is with printed books, which are also reproduced through four-colour printing. In our experience, an entry level laser printer can match – and often exceed – the print quality of many commercially-distributed 'coffee

## Test Printers

Our initial tests were carried out on three typical entry-level, A4 'business' printers: the FujiXerox DocuPrint CP205, which is priced at around \$250 RRP. This printer claims a resolution of 1200 x 2400 dpi.

We also tested a Samsung CLP-680DW, which is priced at around \$550 and claims to output at 9600 x 600 dpi (600 x 600 x 4 bit). The third printer we tried was a Canon LBP7200Cdn (RRP \$599), which lists its print resolution as 'up to 600 x 600 dpi (2400 x 600 dpi quality)'.



The three printers we tested, from left; FujiXerox DocuPrint CP205, Samsung CLP-680DW, Canon LBP7200Cdn.

table' books that sell for \$50 or more. However, that said, there are some common faults that can appear in prints from laser printers:

1. Track marks on the surface of the paper, caused by the paper feed system. You can't do much to prevent them, although their visibility can be reduced by laminating the prints.

2. Gloss differential, where different tones have different 'shininess' when the print is viewed from a shallow angle. This can also occur with inkjet printing and is reduced by laminating the prints.

3. Metamerism, in which colours look different under different types of lighting. Almost all laser prints will appear 'warmer' in tone under incandescent lighting but take on a greenish colour cast under fluorescent lights. You can't do anything to prevent this.

4. Each printer will reproduce colour balance, brightness and contrast in slightly different ways, which can influence the end result.

5. Colour and brightness banding can be visible in some prints. It's usually quite subtle but indicates variation in the density with which the toner has been applied.

All laser printers leave the factory calibrated for document printing; not photo printing. Default settings are based on standard office printing paper (80~100 gsm), rather than covering a wider paper range. Colour, brightness and saturation adjustments are available, but may not be accessible in Photo mode. Some defaults can't be over-ridden in the photo printing mode.

## Paper Choices

A wider choice of papers is available for laser printing than for inkjet printers. Laser papers also tend to be cheaper than inkjet papers and come in larger packs, although not necessarily a wider range of sizes.

You can't use inkjet papers because their surfaces are coated to receive sprayed-on inks, whereas the surfaces of laser papers are coated to attract dry powder. Inkjet photo papers can't take the high heat used in a laser printer to fuse the toners to the paper.

Inkjet printers also have a simpler paper feeding system that allows them to print on thicker papers than laser printers. ('Normal' 80, 90 or 100gsm bond papers can be printed on both laser and inkjet printers.)

If you want good-looking prints, you must be discerning when choosing papers. Avoid plain office paper. The best results will come from coated papers with smooth surfaces and these can come in matte, low-gloss and glossy finishes.

The weight of the paper determines how the prints feel when handled. We recommend a minimum weight of 130 grams/square metre (gsm) for photo books and calendars. Some printers can't handle papers of 170 gsm or more.

## Setting Up

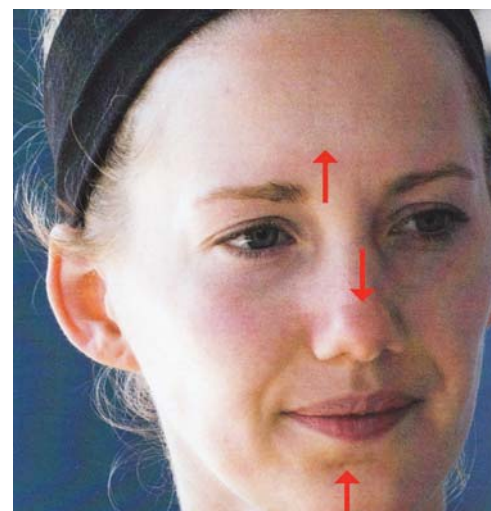
The drivers in the printers we tried often defaulted back to settings for printing



*This illustration shows the subtle differences in colour and tonal rendition produced by different printers. The image in the top left reproduces the original from which the others were printed. To its right is a scanned image output by the Canon LBP7200Cdn. Below the original is a scan from a print made with the FujiXerox DocuPrint CP205, while beside it is a scan from a print made with the Samsung CLP-680DW.*



*An example of an image that prints well on a laser printer.*



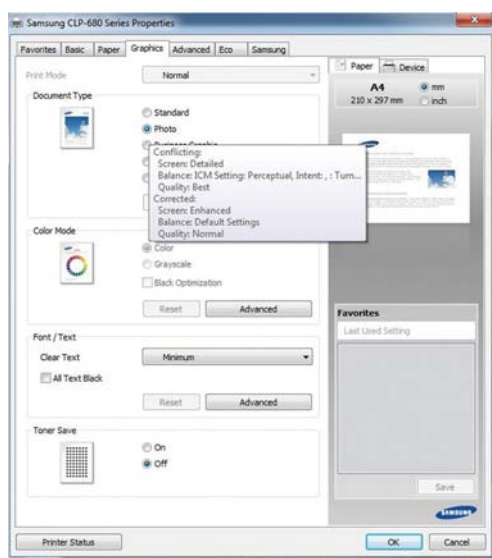
*The edges of areas of banding are indicated by the red arrows.*



*An example of the type of image which is difficult to print satisfactorily with a laser printer.*



A print made on coated paper with the printer driver set for plain paper. Note the streaks resulting from paper incompatibility.



The driver in the Samsung CLP-680DW is more complex than the drivers in the other printers we tested, which may account for our difficulties in applying ICC profiles when printing.

documents on plain paper, so you need to keep checking all the settings each time you make a print – particularly when swapping between image files. The first step is to select 'photos' for the output quality and ensure the resolution is as high as the printer supports. Then match the paper type in the driver to the stock you're printing on.

The drivers in the printers we tried all provided suitable settings for heavier-weight, coated paper. If in doubt, select 'Lightweight card stock' or 'Coated paper' rather than 'plain paper' for the paper type setting.

If you don't match the paper in the driver to the paper you print on, the toner won't fuse to the paper correctly and your prints will show white patches like those shown on this page. Colours that weren't fused to the paper may carry over to be deposited on subsequent prints.

## ICC Profiles

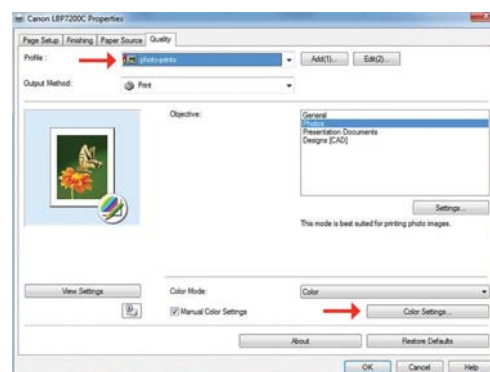
The three printers we tried allowed use of ICC profiles to help you match the print colours to the colours displayed on your monitor screen. In the FujiXerox DocuPrint CP205, the following settings worked well for most subjects: **Adjustment mode** – recommended, **Image type** – photos, **Image auto correction** – select 'Portrait' or 'Landscape' from the drop-down menu, according to the subject type.

Then click on **Profile Settings** and select the **ICC Profile** button. You can then set the **Monitor** profile to the same as your monitor's by clicking **Browse** and choosing the profile from the drop-down menu. For **Input Image** select 'Same as monitor'.

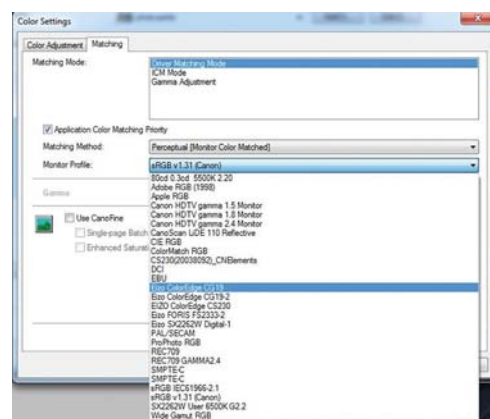
Initial selection of ICC profiles is even easier in the Canon LBP7200Cdn once you've navigated to the Quality page in the driver.

We used the following settings; **Profile** – photo prints, **Objective** – Photos, **Colour Mode** – select Colour or Black and White, according to the subject type. Then click on the Colour Settings button to open the manual settings pages.

Skip the **Colour Adjustment** page and select the **Matching** page to access the profile settings. Select **Driver Matching Mode** from the top menu, then check the **Application Colour Matching Priority** button. For the **Matching Method**,



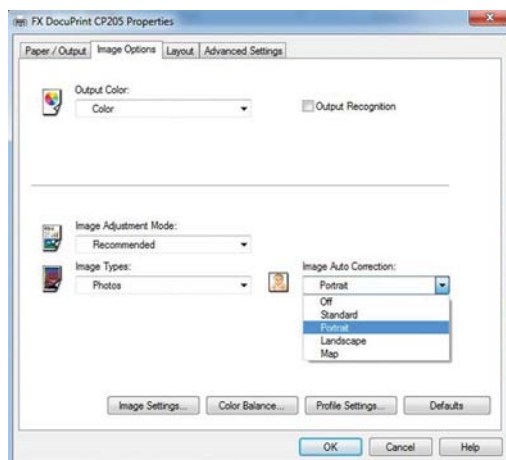
Accessing the profile settings in the driver for the Canon LBP7200Cdn.



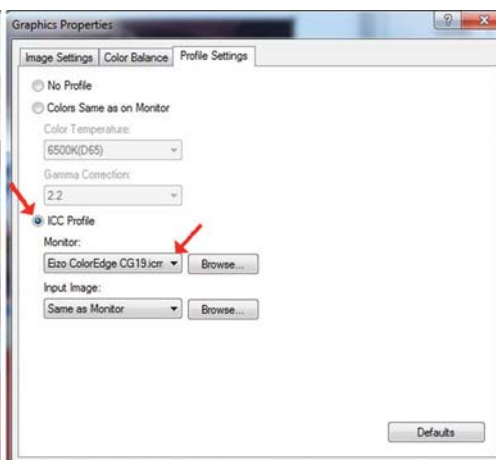
Canon driver profile

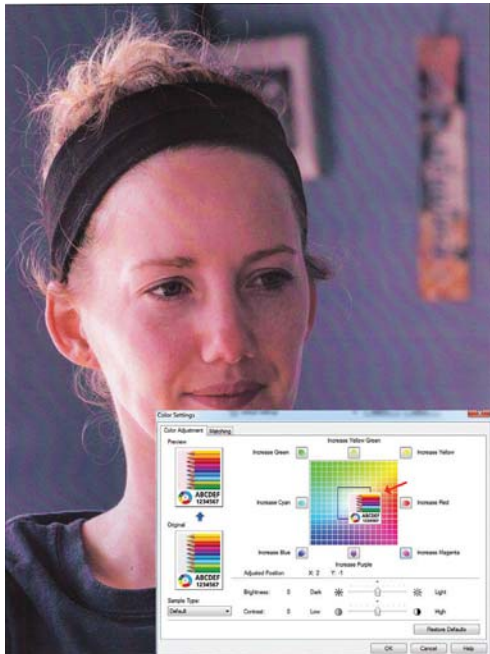


Selecting the paper type from a drop-down menu (circled) in the driver of the FujiXerox DocuPrint CP205 printer.

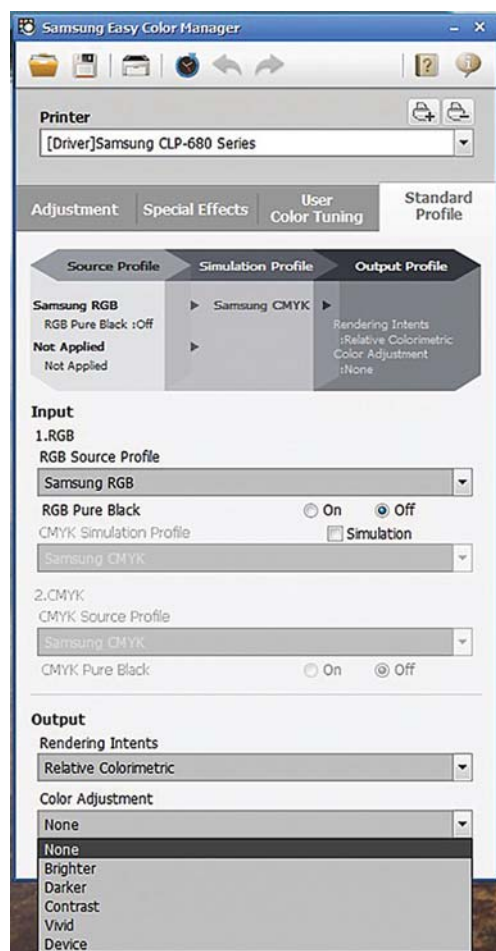


The profile settings in the driver for the FujiXerox DocuPrint CP205.





The Colour Adjustment page in the Colour Settings section of Canon's printer driver is easy to use. But each adjustment step is relatively large and changes the image colour balance quite radically, as shown in the image behind the dialog box. In this case a one-step adjustment to add red and magenta was applied.



Samsung's Easy Colour Manager provides limited support for ICC profiles.

choose Perceptual [Monitor Colour Matched]. Opening the **Monitor Profile** drop-down menu allows you to select your monitor profile.

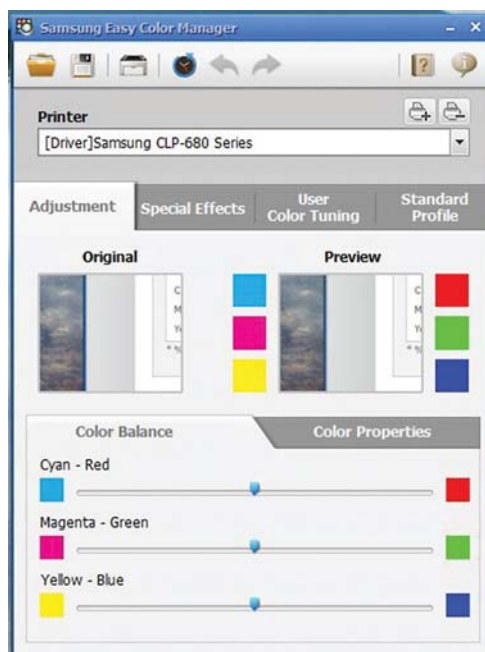
It's more difficult to use ICC profiles with the Samsung CLP-680DW because, while there's limited profile support in the Standard printing mode, it is blocked for the Photo printing mode (which seems counter-intuitive). Profile access is also difficult to locate in the printer driver, even in the Advanced section. The driver is set to block access when it perceives a 'conflict' in settings, as shown in the screen grab.

Samsung's Easy Colour Manager software, which has to be downloaded from the company's website and then installed, provides very limited profile support, along with some potentially useful image adjustments. Unfortunately, there's no link to the profiles in your computer, which makes it difficult to use monitor profiles in the photo printing mode.

## Colour Adjustments

While all the printer drivers we looked at include adjustments for brightness, contrast and the various colour levels, we would caution users about making adjustments in the printer driver. The adjustments made by the FujiXerox and Canon drivers are simply too great.

The Samsung driver supports finer tuning but none of the drivers lets you preview the results of the changes you make before committing to a print. Images that require small adjustments to brightness and/or colour values should always be adjusted in an image editor. (Save the adjusted image as a copy to ensure it is quicker to print again.)



Colour adjustments in Samsung's Easy Colour Manager.



**EIZO**<sup>®</sup>

high-end-monitors



- 1 EIZO patented 16bit chip: accurate skin tone reproduction
- 2 ColorEdge 3D LUT: accurate shadow, midtone and highlight detail
- 3 Wide colour gamut: faithful colour reproduction
- 4 Temperature sensor: subtle details remain stable, all day long
- 5 Factory set gamma values: smooth colour gradations for detail, accuracy, and stability over years of use
- 6 Now with built-in sensor (CS230, CX240, CX270, CG246, CG276)



www.eizo.com.au

www.facebook.com/eizooceania

info@eizo.com.au



Focal length: 200mm Exposure: 1/10 1/60 sec ISO1000

Picture Perfect. Telephoto That Delivers.

# SP 70-200mm F/2.8 Di VC USD

**100% Performance, 100% Resolution,  
A fraction of the cost**

Tamron's long awaited new SP (Super Performance) lens has arrived. Years in the making, Tamron have now engineered their award winning, proprietary VC (Vibration Compensation) technology into the class leading 70-200mm f/2.8 lens.

This compact, full-size telephoto zoom lens offers serious photographers the power to capture any moment from afar while preserving it in high fidelity.

Model A009, Di (Digitally Integrated lens designed for digital APS-C and full-size SLR camera sensors.

Compatible mounts: Canon, Nikon, Sony\*

\* The Sony mount does not include VC, as Sony digital SLR bodies already include image stabilization functionality.



find out more at [www.tamron.com.au](http://www.tamron.com.au)

**TAMRON**  
New eyes for industry

# Making the Most of Standard Zoom Lenses

Margaret Brown

We begin a new series of articles on different lens types by looking at standard kit zooms.

Most people buying an interchangeable-lens camera for the first time will opt for the 'kit' lens bundled with the camera. When you're buying an entry- or mid-level camera, it's a convenient way to get a lens (or two) that suits the camera. Professional and prosumer cameras are usually sold in body-only configurations, although some manufacturers may bundle higher-featured lenses with them.

Bundled lenses are often affordably priced and cover popular focal length ranges for everyday photography. The most popular kit lenses have zoom ranges that extend from a moderately wide angle of view to a modest telephoto (typically 28mm to around 85mm in 35mm format).

Kit lenses tend to be relatively small and light, which makes them a good starting point for building a worthwhile camera kit. They enable you to sample the focal lengths most frequently used by serious photographers. You can then decide which lenses to add as you develop different aspects of your photography.

## Limitations of Kit Lenses

Kit lenses are probably a lot better than many people give them credit for. But they do have a couple of significant shortcomings.

**1. Build quality.** Because they're built to a price, kit lenses often contain a relatively high percentage of plastic. There's nothing wrong with this; modern plastics are tough and

durable and they're lighter than metal and glass components. Plastic lenses can be moulded with high precision and made from materials with high levels of clarity and light transmission.

However, plastic lens mounts are vulnerable to wear and impact shock. If you are hard on gear and/or like to shoot in bad weather, you will probably need a more substantial lens. But you'll also need a camera body to match.

**2. Speed.** Kit lenses are typically a stop or two slower than prime (single focal length) lenses or premium-quality zooms. This means they have poorer light transmission, which reduces the brightness of the image in optical viewfinders. They also make it more difficult to achieve smooth, out-of-focus areas when you want to isolate subjects from distracting backgrounds.

Built-in stabilisation, either in the lens itself or in the camera body, can support hand-held shooting in relatively low light levels, although it won't make the viewfinder any brighter. Nevertheless, it's worth paying more for a stabilised lens if your camera body doesn't provide stabilisation.

**3. Autofocusing.** The autofocus systems on kit lenses are often based on screw-drive motors. These are usually slower and noisier than the ultrasonic drives used on more expensive lenses.

**4. Focal length range.** If you find the wide end of the zoom range doesn't produce the dramatic angles of view you seek, you may want a wider lens. Alternatively, you could try shooting and stitching a panorama, using the camera held vertically.



*Being small and light, kit lenses are much easier to carry on challenging trips than faster, more solidly-built lenses. When you're shooting in bright conditions, you may not be able to use very wide apertures, overcoming their main limitation.*



Examples of the zoom range of a typical kit lens.  
(Taken with the Olympus M.Zuiko 14-42mm  
F3.5-5.6 II lens at 14mm and 42mm.)

Few kit lenses are long enough to take close-ups of animals and birds in the wild, although they are fine for photographing pets. Kit lenses are also unsuitable for close-up shots of sports action. For some subjects, simply moving closer could solve the problem.

Photographers who enjoy shooting extreme close-ups will also find a kit lens limiting. A dedicated macro lens will probably be required, or a telephoto zoom with good close-focusing capabilities.

**5. Flare.** Kit lenses are often flare-prone. This can often be solved by fitting a lens hood. Unfortunately, few manufacturers supply hoods with their lower-priced lenses so you should consider adding a hood when the kit lens is purchased.



Kit lenses are often sold without lens hoods, which makes them susceptible to flare, as shown in this illustration.

## Sensor Crop Factors

The actual focal lengths of kit lenses varies with the sensor format of the camera they're designed for. But the typical range is equivalent to about 28-75mm in 35mm format.

Different sensor sizes apply different 'crop factors', which influence the field-of-view coverage of the lens. Crop factors relate the effects of smaller sensors to the traditional 35mm film format. The table below compares the kit lenses in the main camera formats.

Crop factors influence the depth of field of lenses. The larger the sensor, the more control the photographer has over the plane of sharpness in an image. And the narrower the plane of focus, the greater the ability to blur background details.

Depth of field of a lens increases as the size of the camera's sensor is reduced. That's why it's so easy to take sharp pictures with compact digicams (or camera-phones) but so difficult to isolate subjects from distracting backgrounds.

The sensor's crop factor can give you some idea of how much greater the inherent depth of field is for smaller sensor formats, compared with a standard 35mm camera. For example, a lens with an f/1.8 aperture will have a wider depth of field on the small Micro Four Thirds sensor than a f/1.8 lens on an APS-C camera, which will itself be larger than a f/1.8 lens with a full frame sensor. This is something to be aware of if you want smooth out-of-focus backgrounds in shots.

| Sensor format/<br>size       | Crop factor | Main focal<br>length range | 35mm<br>equivalent | Common<br>alternatives |
|------------------------------|-------------|----------------------------|--------------------|------------------------|
| 'FX' / 36 x<br>24 mm         | 1x          | 24-70mm                    | 24-70mm            | 24-85mm,<br>24-105mm   |
| 'DX' / ~23 x 15<br>mm        | 1.5x / 1.6x | 18-55mm                    | 27-82.5mm          | 18-70mm,<br>17-85mm    |
| M4/3 / 17.3 x<br>13.0 mm     | 2x          | 14-42mm                    | 28-84mm            | 14-45mm                |
| 'CX' / 13.2 x<br>8.8 mm      | 2.73x       | 10-30mm                    | 27-81mm            | 11-27.5mm              |
| Pentax Q / 6.17<br>x 4.55 mm | 5.83x       | 5-15mm                     | 27.5-83mm          | n.a.                   |



Although the sensor crop factor of 1.6x didn't present difficulties when shooting this close-up at a focal length of 38mm at f/5, the depth of field made it difficult to obtain a soft out-of-focus background that would isolate the subject.

Make the right choice - **A**t Camera House



camerahouse.com.au  
13 FOTO (133 686)

camerahouse



A candid shot in a night market, taken with the 18-55mm kit lens on a Canon EOS M. This camera lets you move in close to subjects and shoot at 55mm without attracting attention.



An 18-55mm kit lens on a camera with an APS-C sized sensor will allow you to shoot close-ups of subjects larger than macro size and use a small lens aperture (f/8) to maximise depth-of-field.

## Shooting Tips

Most kit lenses are very versatile. At the wide end they're useful for capturing landscapes, while at the tele position, they become handy portrait lenses. In between, you can use them for group portraits, street photography, tabletop shots and even some close-ups.

Explore the limitations of your lens by taking shots at each end of the zoom range. At the wide end, experiment to see how close the lens will focus. Try some shots of buildings to see how much it distorts vertical and horizontal lines (some cameras provide in-camera corrections for distortion to overcome such problems). Look at how perspective changes when you look up at a subject – and when you look down.

Use the tele end for portraits – both formal and candid. And use the position of your subject and the lighting to their best advantage.

If you don't have studio lights for formal portraits, natural daylight shining through a window is a tried-and-proven lighting technique. It's easy to brighten the shadowed side of the subject's face with a reflector made from a sheet of white card.

For candid shots, it's best to shoot quickly and capture the moment, rather than fussing about the lighting. Smaller interchangeable-lens cameras with touch screens are great tools for candid and street photography because they're inconspicuous and the touch shutter control lets you shoot 'from the hip' and avoid attracting attention.

Telephoto lenses create an impression of compressed perspective. Find out how much your lens compresses by photographing a fence or line of trees. Check out the lens's bokeh by shooting a portrait (or close-up) with the widest aperture setting. Try a few different angles and you'll soon learn how the lens handles highlights and how to avoid 'choppy' looking backgrounds.

Finally, explore the focal lengths between these extremes. See which focal lengths work best with different types of subjects. Try walking towards a subject with the lens set mid-way in the zoom range instead of just zooming in. You might be surprised at how the perspective in the shot is changed by the focal length setting.

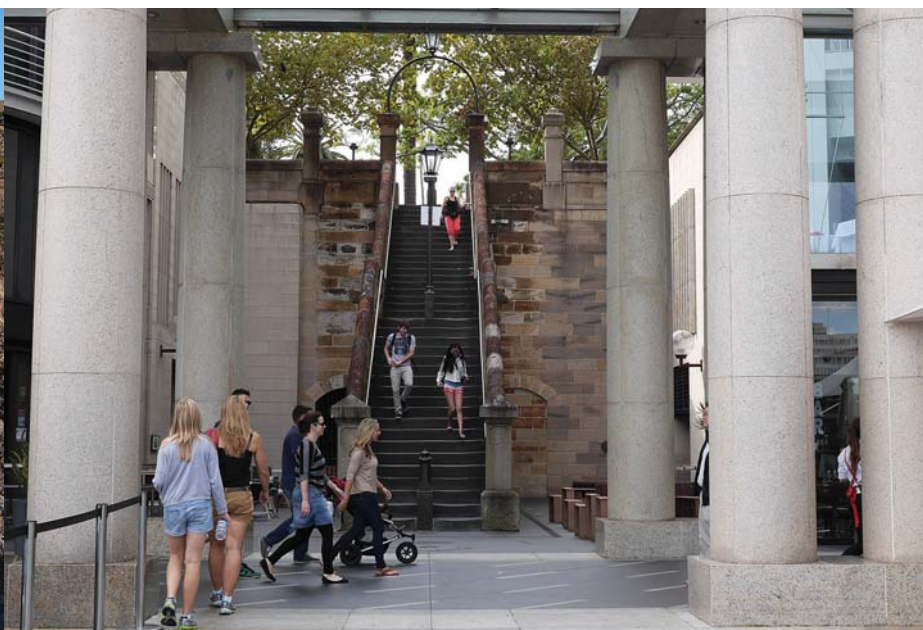
Once you have explored the potential of your lens you will also understand its limitations. And your photography will improve as you master each focal length.

Many photographers keep using their first kit lens for the life of the camera body. For some, one or two kit lenses will cover all the shooting situations they encounter. The only reason to consider other lenses is when you need different focal lengths or larger maximum apertures.

In the next issue we will look at telephoto zoom lenses, concentrating on the focal length ranges usually offered in twin-lens kits.



The moderately wide angle of view at the wide end of the zoom range introduces few distortions, making it ideal for landscape photography. (28mm focal length on a 'full frame' DSLR body.)



All wide-angle lenses introduce some distortion but you can minimise it by shooting with a focal length that is close to the middle of the zoom range and keeping the camera as vertical as possible. (35mm focal length on a M4/3 camera body.)

# The Value of Lens Hoods

Margaret Brown

Why you should always fit a lens hood – and how to make your own, when necessary.

*Without a lens hood, the strong side lighting in this scene would have reached the front element of the lens and caused a significant loss of image contrast, due to veiling flare.*

We're big fans of lens hoods because they ensure the imaging light that reaches the camera's sensor is not contaminated by scattering and internal reflections, both of which produce lens flare. Flare only occurs when light from a very bright source, such as the sun, strikes the front element of the lens.

It is never seen in photographs taken with the light source behind the photographer or well away from the lens axis. So there will be some situations (and lenses) for which a hood is essential and others where it's not. In this feature we'll look at what flare is, how to avoid it, the benefits of lens hoods and how to make your own lens hood if one isn't provided or you feel the asking price is excessive.

## The Roles of Lens Hoods

The primary role of a lens hood is to prevent the direct sunlight (or another light source) from shining on the front element of the lens. Studio photographers are seldom worried by flare because they can control the direction of their lights with gobos and barn doors, both of which can be attached to lights to prevent the illumination from spilling into areas where it is not wanted.

Lens hoods play the same role but are much more portable because they are attached to the end of the lens, rather than the light

source. This also enables them to be effective for light sources that aren't controllable, such as the sun.

Aside from minimising the effects of flare, a lens hood can protect the lens from physical damage. It will act as a buffer between the lens and the environment, preventing your fingertips from straying onto the delicate front element and leaving greasy marks that will degrade your photos.

A hood can also protect the front element from being scratched by branches or chipped by impact with hard objects; for example, if the lens is dropped. Lens hoods on longer tele lenses will also provide some protection against rain, spray and dust (although lenses that aren't weather-resistant shouldn't be exposed to the former).

While some people attach UV filters to protect the front elements of their lenses, it's actually better to use a lens hood. Unless they are made of very high-quality glass and properly fitted, filters can degrade image quality. They may also produce ghosting with some bright light sources, due to reflections between the internal surface of the filter and the outer surface of the front element of the lens.

Unfortunately, lens hoods are often undervalued, even by professional photographers. They take time to fit, add length and weight to



*Rectangular lens hoods are often produced for wide-angle prime lenses like the M-Zuiko 12mm f/2.0, shown here on the Olympus OM-D E-M5 camera.*



A typical cylindrical hood for an 85mm prime lens.



A typical rubber lens hood, the length of which is adjustable by pulling out or pushing in the ribbed cylindrical section.



A longer, petal-shaped hood for a 70-200mm tele-zoom lens.



A short, petal-shaped hood for a 35mm wide-angle lens.



A typical fisheye lens has a very short hood that is permanently attached. (Source: Nikon.)

the lens (though usually not much) and take up space in a camera bag.

And while manufacturers may provide them with their more expensive lenses, they seldom do so with the cheaper, entry-level lenses. Although this strategy allows them to extract more money from consumers who are knowledgeable enough to want hoods, it is essentially penny-pinching and environmentally unsound.

Most lens hoods are made of plastic or, at best, lightweight aluminium. It costs a few dollars to produce them; probably about as much as the total cost of packaging them in cardboard and plastic that will be discarded. Add to that the cost of freight when shipping the packages and you have a lot of unnecessary expenditure and an environmental cost that would be eliminated if lens hoods were bundled with lenses in the first place.

When searching for hoods for most consumer lenses, you'll find the manufacturers' RRP range from about \$25 to \$100, depending on the size of the hood and what it is made from. Theoretically, there shouldn't be much price differential between plastic and aluminium hoods, although in practice, the former are more common and generally cheaper because of the perceived 'superiority' of metal components.

In fact, modern plastics are very robust and less likely to shatter or become dented when subjected to impact shock than lightweight metals. Plastics are also less likely to show

scratches than metals, particularly when the latter are painted black.

## Lens Hood Designs

All lens hoods must be designed to cover the field of view of the lens to which they are fitted. Their shapes can vary from a simple cylinder or conical section (like a traditional lamp shade) to a complex 'petal-' or 'flower-shaped' hood. Some hoods for wide-angle lenses have cylindrical attachments but end in rectangular (or square) shapes.

In petal-shaped hoods, the longer 'petals' are set to correspond with the longer axes of the image frame, while the shorter 'petals' match up with the shorter axes. Between them are lowered areas that correspond to the corners of the frame and admit more light to prevent vignetting (corner darkening).

Rectangular lens hoods have a shape that closely matches the image frame shape. Best suited to wide-angle prime lenses, they can be longer than circular lens hoods without blocking the angle of view or causing vignetting.

A few third-party manufacturers produce adjustable hoods with a bellows-like design, usually made from rubber. They are generally conical in shape and attach to the lens via the filter thread. Users can extend the bellows for longer focal length lenses and reduce it with wider angles of view.

Although not precisely matched to any particular lens, this can be an option if used carefully (which means checking that the hood doesn't become visible in the frame by stopping the lens down

## About Lens Flare

Light reflected back from the glass-air surfaces of each lens element and scattered due to irregularities in the glass causes a loss of contrast and colour saturation and visible artefacts in images produced by the lens. The latter can appear as polygons, starbursts, rings, or circles in a row across the image.

Lens manufacturers apply coatings to suppress scattering and internal reflections but even the best coatings are hard-pressed to counteract the effects of flare when the lens is pointed towards the sun. Flare is less obvious when the light doesn't shine directly into the lens, although contrast can often be reduced in backlit shots, particularly in lower-quality lenses.

Wide-angle lenses are more likely to be flare-affected than tele lenses because

they cover a larger field of view (which is more likely to include the sun). Fish-eye lenses are particularly vulnerable because hoods can't be fitted, so most have built-in hoods that are very short. Accordingly, manufacturers generally design them to be more flare-resistant to bright light sources.

Zoom lenses are usually more flare-prone than prime lenses as they have more internal elements, and multiple surfaces tend to produce more scattering. Adding a filter can also produce flare, particularly in the form of ghost images of bright lights. Flare can also occur as a result of internal diffraction on an image sensor, which acts like a diffraction grating due to its pixel structure.

Flare effects are sometimes introduced deliberately to add a sense of drama and 'realism' to computer and video games.



An example of an image affected by flare. Note the loss of contrast and colour saturation and the faint streak of red, which creates an artefact near the centre of the picture.

Many graphics programs include starburst, ring or angular patterns that can be moved according to the position of the light source using ray tracing technologies, but unless applied by very skilled operators they rarely appear genuine.

and using the depth-of-field preview). If you have lenses with different filter diameters, you'll need a separate hood for each lens.

Manufacturers are aware of at least some of the inconveniences associated with lens hoods and usually produce hoods that can be reversed onto the lens for easy, compact storage. Some lenses (notably ultra-wide-angle lenses) come with permanently-attached hood-like mouldings that act as lens hoods. In other cases, the front element is recessed deeply into the lens barrel, providing basic protection against flare and impact.

### DIY Lens Hoods

If you're strapped for cash - or can't find the hood you need - you can always make your own. There are a couple of UK-based websites that provide printable patterns for lens hoods in PDF format. These patterns can be traced onto black cardboard, cut out and attached to the lens with adhesive tape. They are also easily trimmed to suit individual lenses.

Go to <http://www.lenshoods.co.uk/> for 35mm and digital SLR camera lenses or [www.lenshoods.net](http://www.lenshoods.net) for lens hoods optimised for digital SLRs with 1.5x and 1.6x crop sensors.

### Usage Tips

If space is tight in your camera bag, packing the lens with the hood reversed makes good sense. But don't forget to fit the hood properly before shooting. (It's amazing how many people shoot with their lens hood in this reversed position, where it has no beneficial effects.)

If you carry your camera with lens attached in a top-loading bag or backpack, it's safe to leave the lens hood in place to enable you to grab shots quickly. You can even leave the lens cap off, provided the interior of the bag is dust and grit free.

Petal-shaped and rectangular lens hoods shouldn't be used with zoom lenses whose front elements rotate as the focal

length is changed, because they will block part of the image when the lens is adjusted. Cylindrical and conical hoods work best with these lenses.

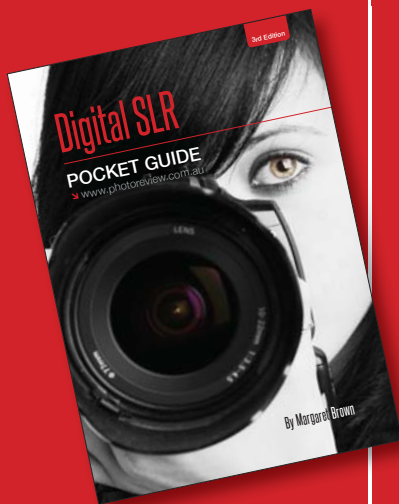
Hoods (and other attachments) should be fitted 'finger-tight'. Screw-in hoods should fit securely but still be easy to remove. Hoods that have been screwed on too tightly may need to be removed by a camera service technician (which is costly).

If the fit tends to be too tight, run your finger across your nose or forehead and use the body oil picked up to lubricate the threads on the hood, taking care to avoid touching the front element of the lens. This should make it easier to remove next time.

Manufacturers covered include Canon, Nikon, Pentax, Sigma, Tamron and Tokina.

Olympus is listed but only the Zuiko 4/3 system lenses are covered. Micro 4/3 lenses don't get a look-in; nor do lenses for Fujifilm's X-series cameras. Don't expect the recently-

released lenses to be included, either, as the sites don't appear to have been updated recently. However, you will find hood patterns for some very expensive fast tele lenses for which the hood RRP's are \$300 or more.



**TALUBOOKS**  
The eBook People

**MEDIA eBooks**  
PUBLISHING

**PHOTOREVIEW**  
AUSTRALIA

# TAKE CONTROL of your DSLR

## Digital SLR Pocket Guide

By Margaret Brown

*3rd Edition, fully revised and updated.*

For all levels of photographer this book provides an easy to follow guide to superb digital SLR photography.

Digital SLR Pocket Guide takes you step by step from choosing the right camera and lenses through to understanding the key functions that produce perfectly exposed photos.

The guide is fully illustrated with sample images and practical shooting tips that show you how to use the most important DSLR controls effectively.

 **Ebook Edition**  
**\$9.99**

Format: epub, mobi  
Read on your iPad, iPhone, iPod touch, Kindle, tablet, smartphone, laptop, PC or Mac

Available at Photo Review's online bookstore [www.TaluBooks.com](http://www.TaluBooks.com)  
Also available on Apple iTunes and Amazon.

 **Print Edition**  
**\$29.95**

Size: A5, 100pp, perfect bound  
Available at [www.TaluBooks.com](http://www.TaluBooks.com)

Order online at [www.talubooks.com](http://www.talubooks.com) or call (02) 9948 8600



## FX & DX LENS

### AF-S Nikkor 50mm f/1.8G

The AF-S Nikkor 50mm f/1.8G is designed for use with both FX and DX camera bodies, covering an angle of view equivalent to 75mm on the latter. It has no aperture ring, so it's best used on a modern camera body. Owners of Nikon's FX cameras will find its performance is worthy of consideration.

Only 72mm long and weighing 185 grams, this lens is compact and light. Build quality is generally good. Nikon's Silent Wave Motor (SWM) drive ensures fast, accurate and quiet autofocus. Two focus modes are provided: distance scale M/A (autofocus with manual override) and M (manual). Built-in stabilisation is not provided.

Autofocusing was not particularly fast and resolution was highest at wide aperture settings with the highest figures around f/4. Lateral chromatic aberration was negligible. Slight barrel distortion was detected but vignetting was barely noticeable.

Bokeh was variable but out-of-focus highlights were not completely circular and some coloured fringing could be seen along their edges.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)

## SPECIFICATIONS

**Lens construction:** 7 elements in 6 groups (with one aspherical lens element)

**Lens mounts:** Nikon F mount

**Minimum focus:** 45 cm

**Dimensions (Diameter x L):** 72 x 52.5 mm (distance from camera lens mount flange)

**Weight:** Approximately 185 grams

## AT A GLANCE

An affordable, moderately fast standard prime lens for Nikon's FX and DX cameras, which is also usable on Nikon 1 bodies via an adaptor.

### RATING (out of 10)

- |                     |                      |
|---------------------|----------------------|
| ▶ Build: 8.8        | ▶ Image quality: 8.8 |
| ▶ Autofocusing: 8.0 | on D5200; 7.8 on     |
| ▶ Handling: 8.8     | Nikon 1 V2           |
| ▶ Versatility: 8.5  | ▶ Overall: 8.8       |

**ASP:** \$289

**Distributor:** Nikon Australia; 1300 366 499; [www.nikon.com.au](http://www.nikon.com.au)



## DX LENS

### AF-S NIKKOR 18-300mm f/3.5-5.6G ED VR

Nikon's widest-range zoom lens, the AF-S DX Nikkor 18-300mm f/3.5-5.6G ED VR, was designed for photographers who want an 'all-in-one' lens for travel and general photography. Suitable for DX cameras only, it covers a huge 16.7x zoom ratio. Equipped with second-generation VR II stabilisation technology, it boasts camera shake compensation of approximately four f-stops.

Being a large and relatively heavy lens, it's a bit unbalanced on lighter camera bodies, like the D5200 used for our tests. Build quality was above average for a consumer lens.

Autofocusing was fast and accurate under most shooting conditions. The VR II stabilisation proved capable in most situations. Subjective evaluation suggested the review lens was also a competent performer.

However, Imatest showed it failed to reach expectations for the camera's sensor across its focal length range. This was probably inevitable as very few lenses of this type would be able to match the capabilities of a 24-megapixel image sensor. Lateral chromatic aberration was generally low.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)

## SPECIFICATIONS

**Lens construction:** 19 elements in 14 groups (including 3 aspherical lens elements and 3 ED lens elements)

**Lens mounts:** Nikon F-mount

**Minimum focus:** 45cm at 300mm focal length

**Dimensions (Diameter x L):** 83 x 120mm (distance from camera lens mount flange)

**Weight:** Approx. 830 grams

## AT A GLANCE

A high-power, 16.7x zoom lens with built-in vibration reduction for Nikon's DX DSLR cameras.

### RATING (out of 10)

- |                     |                      |
|---------------------|----------------------|
| ▶ Build: 8.5        | ▶ Handling: 8.0      |
| ▶ Autofocusing: 8.5 | ▶ Image quality: 8.0 |
| ▶ Versatility: 9.0  | ▶ OVERALL: 8.3       |

**ASP:** \$1200

**Distributor:** Nikon Australia; 1300 366 499; [www.nikon.com.au](http://www.nikon.com.au)



## CX LENS

### 1 Nikkor 18.5mm f/1.8

Announced with the Nikon 1 V2 camera in October 2012, the 1 Nikkor 18.5mm f/1.8 provides an angle of view roughly equivalent to a 50mm lens on a 35mm camera. Offered in silver, black and white, it is currently the lightest lens in the 1 Nikkor line up. The non-reversible HB-N104 hood is an optional accessory that will cost you roughly \$30.

Despite its light weight and small size, this lens is nicely constructed with a sturdy metal mounting plate that meshes well with the V2 body. Manual focusing is via the ring around the arrow pad. A vertical distance scale is displayed on the monitor or in the EVF.

The review lens delivered sharp, contrasty images for stills and movies and met expectations in our Imatest tests. Diffraction reduced resolution at f/11. Lateral chromatic aberration was generally low. Autofocusing was fast and silent in most situations. Flare was generally well controlled and bokeh good for a lens of this type.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)

## SPECIFICATIONS

**Lens construction:** 8 elements in 6 groups (including 1 aspherical lens element)

**Lens mounts:** Nikon CX

**Minimum focus:** 20cm

**Dimensions (Diameter x L):** 56 x 36 mm (distance from camera lens mount flange)

**Weight:** Approx. 70 grams

## AT A GLANCE

A fast prime lens with a 'standard' angle of view for Nikon 1 cameras.

### RATING (out of 10)

- |                     |                      |
|---------------------|----------------------|
| ▶ Build: 8.5        | ▶ Handling: 8.5      |
| ▶ Autofocusing: 8.5 | ▶ Image quality: 8.8 |
| ▶ Versatility: 8.0  | ▶ OVERALL: 8.5       |

**RRP:** \$235

**Distributor:** Nikon Australia; 1300 366 499; [www.nikon.com.au](http://www.nikon.com.au)



## M4/3 LENS

## Panasonic Lumix G X Vario 12-35mm f/2.8 ASPH

The Lumix G X Vario 12-35mm f/2.8 ASPH is the first (and, so far, only) standard zoom for a mirrorless camera system with a constant maximum aperture of f/2.8. Made from high quality polycarbonate on a metal frame, it is dust- and splash-proof and includes internal focusing plus POWER OIS stabilisation.

Like the 35-100mm lens, it takes 58mm filters which don't rotate during focusing. It comes with a reversible petal-shaped lens hood, a soft storage pouch and front and end caps.

Imatest showed the review lens was capable of meeting expectations for the GH3's sensor at all focal length settings. Lateral chromatic aberration was negligible and distortion was relatively slight. Correction for vignetting is optional and accessed via the shooting menu.

The M4/3 format reduces the background blurring potential by approximately two f-stops compared with a 35mm camera. But the wide f/2.8 maximum aperture produced attractive bokeh in close-ups with the 35mm focal length. The stabilisation system was very efficient.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)



## M4/3 LENS

## Panasonic Lumix G X Vario 35-100mm f/2.8

Panasonic's Lumix G X VARIO 35-100mm f/2.8 / POWER OIS lens is a 'companion' to the Lumix G X Vario 12-35mm f/2.8 ASPH lens and with it makes up the 'prestige' lens kit for the GH3. Splash- and dust-resistant, it is compact for its build quality and optical design and ideal for portraiture, sports and wildlife photography.

Internal focusing is driven by a stepping motor, making it smooth and silent. POWER OIS stabilisation provides roughly three f-stops of shake compensation.

The review lens produced sharp images and movie clips. Imatest showed it could meet expectations for the GH3's sensor at all focal length settings. Lateral chromatic aberration was negligible and distortion was barely perceptible. We found slight vignetting at 35mm and 100mm at f/2.8 but not at f/3.5.

Traces of veiling flare were seen in some strongly backlit shots but they didn't compromise picture quality. Subject isolation was easy to achieve with wide aperture settings and bokeh was generally attractive.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)



## FX LENS

## Canon EF 24-70mm f/4L IS USM

Canon's EF 24-70mm f/4L IS USM zoom lens provides a lighter, more affordable alternative to the EF 24-70mm f/2.8L USM lens. While it's a stop slower than its sibling, the f/4 lens is roughly 200 grams lighter and stabilised, with a claimed compensation of up to four f-stops for normal shooting. It also includes a 'macro' setting that focuses down to a couple of centimetres, with 2.5 f-stops of shake correction.

Constructed on a metal foundation with a solid, chromed mounting plate and high-quality polycarbonate cladding, the review lens met professional quality standards. It is dust- and moisture-resistant with internal focusing. The ultrasonic motors ensure fast, quiet autofocus with FTM (full-time manual) over-ride.

The review lens turned in a sterling performance in our Imatest tests and the image stabilisation system worked as well as expected. Edge softening was detectable at all focal lengths up to about f/5.6. Lateral chromatic aberration was consistently negligible. Bokeh was fairly smooth and attractive.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)

### SPECIFICATIONS

**Lens construction:** 14 elements in 9 groups (including 4 aspherical elements, one UED lens and one UHR lens)

**Lens mounts:** Micro Four Thirds

**Minimum focus:** 25cm

**Dimensions (Diameter x L):** 67.6 x 73.8mm

**Weight:** 305 grams

### AT A GLANCE

The fastest standard zoom lens available for Micro Four Thirds system cameras boasts effective image stabilisation plus dust- and splash-proof construction.

**RATING (out of 10)**

- Build: 9.0
- Handling: 8.5
- Image quality: 9.0
- Versatility: 8.8
- **OVERALL: 8.5**

**RRP:** \$1599

**Distributor:** Panasonic Australia; 132 600; [www.panasonic.com.au](http://www.panasonic.com.au)

### SPECIFICATIONS

**Lens construction:** 18 elements in 13 groups (including two ED lenses and one UED lens)

**Lens mounts:** Micro Four Thirds

**Minimum focus:** 85cm

**Dimensions (Diameter x L):** 67.4 x 99.9mm

**Weight:** 360 grams

### AT A GLANCE

The smallest and lightest full-range f/2.8 telephoto zoom lens with dust- and splash-proof construction for M4/3 cameras.

**RATING (out of 10)**

- Build: 9.0
- Handling: 9.0
- Image quality: 8.8
- Versatility: 8.8
- **OVERALL: 8.5**

**RRP:** \$1699

**Distributor:** Panasonic Australia; 132 600; [www.panasonic.com.au](http://www.panasonic.com.au)

### SPECIFICATIONS

**Lens construction:** 15 elements in 12 groups (including 2 aspherical and 2 UD elements)

**Lens mounts:** Canon EF

**Minimum focus:** 20cm in normal range; 1.5cm in macro mode

**Dimensions (Diameter x L):** 83.4 x 93mm

**Weight:** Approx. 600 grams

### AT A GLANCE

Built-in stabilisation and a macro mode are featured in this lighter, less expensive alternative to the EF 24-70mm f/2.8L USM lens.

**RATING (out of 10)**

- Build: 9.0
- Handling: 8.8
- Image quality: 8.8
- Versatility: 8.8
- **OVERALL: 8.8**

**RRP:** \$1949

**Distributor:** Canon Australia; 1800 021 167; [www.canon.com.au](http://www.canon.com.au)



## ADVANCED COMPACT ILC

# Panasonic Lumix DMC-GH3

## SPECIFICATIONS

**Image sensor:** 17.3 x 13.0mm Live MOS sensor with 17.2 million photosites (16.05 megapixels effective)

**Lens mount:** Micro Four Thirds

**Image formats:** Stills – RW2.RAW, JPEG (Exif 2.3), RAW+JPEG; Movies – AVCHD progressive, AVCHD, MP4, MOV with stereo audio, 3D – MPO

**Max. Image Sizes:** Stills – 4:3: 4608 x 3456; 3:2: 4608 x 3072; 16:9: 4608 x 2592; 1:1: 3456 x 3456

**Movie options:** 1920x1080 at 50p/50i, 25p 1280x720 at 50p, 25p, 640x480 at 25p

**Focus system:** TTL contrast detection system with 23 AF points, One-area AF, Pinpoint (touch focus selection supported), face detection, AF Tracking

**Power supply:** DMW-BLF19E rechargeable lithium-ion battery; CIPA rated for approx. 540 shots/charge with H-HS12035 lens

**Dimensions (wxhxd):** Approx. 132.9 x 93.4 x 82.0mm

**Weight:** 470 grams (body only)

## AT A GLANCE

A durable Micro Four Thirds camera with professional video functionality for enthusiasts who require versatility, performance and creative controls for shooting stills and movie clips.

### RATING (out of 10)

- ▶ Build: 9.0
- ▶ Ease of use: 8.5
- ▶ Autofocusing: 8.8
- ▶ Still image quality: JPEG - 8.8; RAW - 9.0
- ▶ Video quality: 9.0
- ▶ **OVERALL: 8.8**

**RRP:** \$1599 (body only)

**Distributor:** Panasonic Australia; 132 600; [www.panasonic.com.au](http://www.panasonic.com.au)

Panasonic's DMC-GH3 is the third model in a 'flagship' series of interchangeable-lens cameras designed for shooting still pictures and video movies. The fully diecast magnesium-alloy frame and weatherproof sealing make the GH3 the toughest, most durable G-series model to date. The sensor has been upgraded to a new chip with 16.05 megapixels (effective), which supports high sensitivity recording to ISO 25,600. A new Venus Engine 7 FHD processor provides improved noise-reduction using both 3DNR (3D Noise Reduction) and MNR (Multi-process Noise Reduction).

The contrast-based autofocus system claims a very fast response time of 70 milliseconds with the 12-35mm lens. According to Panasonic, the camera and lens interchange signals at up to 240 fps to focus as rapidly as possible.

OLED displays are used in both the viewfinder and monitor. The 16:9 aspect Wide Screen LVF boasts a resolution of 1,744,000 dots and covers 100% of the sensor's field of view. It has an eyepoint of approximately 21mm and magnification of 0.67x (35mm camera equivalent). The 3-inch static touch-screen monitor has a resolution of 614,000 dots and a 3:2 aspect ratio. It rotates 180 degrees to the side and tilts 270 degrees up and down and has a wide-viewing angle.

The GH3 can support continuous shooting at 6 frames/second (fps) with full resolution for up to 18 consecutive RAW+JPEG shots. It also offers a high-speed mode that records at 20 fps at 4-megapixel resolution for up to 80 consecutive JPEGs, using an electronic shutter.

Five programmable Function (Fn) buttons (up from three in the GH2) plus three dial controls are provided for adjusting exposure, white balance and ISO settings. Built-in Wi-Fi (IEEE 802.11 b/g/n) enables images and movie clips to be transferred wirelessly to a smart-phone or tablet. The screens on these devices will display the view captured by the camera's sensor and allow remote control over functions like focus settings, exposure compensation, ISO, white balance and Photo Style adjustments, and the shutter release can be triggered remotely via live view using Wi-Fi.

Battery capacity has increased from 330 to 500 shots/charge. The optional battery grip roughly doubles this capacity and makes it easier to shoot in portrait orientation.

## Performance

Our Imatest testing was carried out with the 12-35mm f/2.8 lens. Raw files were converted with Adobe Camera Raw, rather than the inferior Silkpix-based bundled software. Resolution performance matched subjective assessments of test shots across the camera's ISO range. Both JPEGs and RW2.RAW files exceeded expectations for a 16-megapixel camera, with the raw files producing higher figures in the tests.

Long exposures taken in dim lighting showed little visible noise right up to ISO 6400, even without noise reduction processing. Colour accuracy was maintained at high ISO settings. Noise became evident by ISO 12,800 and obvious at ISO 25,600.

Flash exposures were evenly balanced throughout the camera's ISO range and colour reproduction was reasonably faithful at settings up to ISO 3200, when the influence of ambient lighting could be seen and images were a little soft. Auto white balance performance was similar to the G5's.

Autofocusing was very fast and hunting was minimal in low light levels. Focus tracking was also efficient, both when capturing bursts of shots of moving subjects and while recording movie clips.

Video quality was excellent in all movie formats. Soundtracks were clear and free of extraneous noise, thanks to the use of power-zoom lenses. The wind filter did a reasonably good job of suppressing wind noise.

The review camera powered up almost instantaneously and capture lag of less than 0.1 seconds was eliminated by pre-focusing. Shot-to-shot times averaged 0.5 seconds without flash and 0.85 seconds with. Flash recycling times averaged 5.25 seconds when fully discharged. It took 3.1 seconds on average to process each image file.

For continuous shooting, the review camera could record at 10 frames/second with the super high-speed setting. With raw files or RAW+JPEG pairs, 11 frames could be recorded in 1.6 seconds at the highest frame rate. It took 6.2 seconds to process a burst of 10 JPEG shots and up to 25.8 seconds for RAW+JPEG pairs.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)



## ADVANCED COMPACT FIXED LENS

# Fujifilm X100S

### SPECIFICATIONS

**Image sensor:** 23.6 x 15.8mm X-Trans CMOS II sensor with primary colour filter and 16.3 megapixel effective resolution

**Lens:** Fujinon 23mm f/2 lens (35mm in 35mm format)

**Image formats:** Stills – RAF.RAW, JPEG (Exif 2.3), RAW+JPEG; Movies – MOV (H.264) with Linear PCM stereo audio

**Max. Image Sizes:** Stills – 3:2 aspect: 4896 x 3264; 16:9 aspect: 4896 x 2760; 1:1 aspect: 3264 x 3264;

**Movie Options:** 1920 x 1080 pixels (60fps/30fps)

**Focus system:** Intelligent Hybrid AF (TTL contrast AF / TTL phase detection AF) with area and multi modes; AF-assist lamp; minimum focus 10 cm (macro mode)

**Power supply:** NP-95 rechargeable lithium-ion battery; CIPA rated for approx. 300 shots/charge

**Dimensions (wxhxd):** Approx. 126.5 x 74.4 x 53.9mm

**Weight:** Approx. 405 grams (without battery, memory card or accessories); 445 grams with battery and card

### AT A GLANCE

An update to the X100 with higher resolution, faster autofocus and a new hybrid viewfinder that combines optical and electronic systems.

#### RATING (out of 10)

- ▶ Build: 9.0
- ▶ Ease of use: 8.5
- ▶ Autofocusing: 8.5
- ▶ Image quality: JPEG - 9.0; RAW - 9.0
- ▶ Video quality: 8.3
- ▶ **OVERALL: 8.8**

**RRP:** \$1449

**Distributor:** Fujifilm Australia; 1800 226 355; [www.fujifilm.com.au](http://www.fujifilm.com.au)

While the body of Fujifilm's X100S is almost identical to the X100, it features a new 16.3-megapixel APS-C X-Trans CMOS II sensor (up from 12-megapixels) and an improved Hybrid Viewfinder system with a 2.35 million dot display. The 23mm f/2 Fujinon lens is unchanged and most external controls are the same as the X100's. An in-lens leaf shutter supports high-speed flash synchronisation and makes the camera relatively quiet to operate.

The new sensor eliminates need for an optical low pass filter and delivers higher-resolution images with lower noise. Phase detection pixels embedded in the sensor improve autofocus lock on speeds to a claimed 0.07 second. According to Fujifilm these pixels are '*distributed on nearly 40% of the total area of X-Trans CMOS II Sensor and the centre of its screen*'.

A new EXR Processor II improves camera response times and lens performance. However, although the sensitivity range has been extended, you can only access the full span when shooting JPEGs. For raw files, you're restricted to 200-6400 ISO (inclusive).

The hybrid viewfinder is a big improvement on the X100's, although the optical finder is largely unchanged, but with improved parallax correction that can adjust the framing guide for close-ups to within about 50cm from the lens (the limit for 'normal' focusing). However, this framing guide only shows about 90% of the area captured by the sensor.

The resolution of the EVF has been boosted to 2,360,000-dots, nearly double the resolution of the X100's 1,440,000 dot screen. An integrated prism enables it to display shooting data overlaid on the scene. Fourteen functions can be displayed, including shutter speed, aperture, focusing distance, selected focusing point, exposure compensation, electronic level and histogram.

Manual focusing is also improved with a more responsive focusing ring and a Digital Split Image system that uses phase detection to show accurate focus peaking and highlights focused areas in white.

The camera's start-up time has been reduced from 2 seconds to 0.9 seconds and shot-to-shot times are cut from 0.9 seconds down to 0.5 seconds. The top continuous shooting speed increases from 5 fps to 6 fps. The buffer capacity has been enlarged accordingly to accommodate up to 31 JPEG

frames. These improvements are only a few of the 69 listed in our online review of the X100S.

While the video capabilities of the X100S have been improved, they still aren't particularly impressive. Like its predecessor, the X100S will suit landscape, street and candid photographers but is limited for portraiture, sports and wildlife.

### Performance

Test shots were a little soft straight out of the camera but we observed more detail in shadow and highlight areas in shots. Slight edge softening was revealed by our Imatest tests, although Imatest also showed the camera to be capable of above-average resolution for both JPEG and RAF.RAW files.

Resolution remained high throughout the review camera's sensitivity range, although softening could be seen in JPEGs recorded at the top two sensitivity settings. Shots taken at ISO 25,600 showed visible noise. Flash shots at ISO 25,600 had reduced edge sharpness and overall contrast.

Lateral chromatic aberration was consistently negligible and we found no evidence of coloured fringing in test shots. The review camera was more flare-resistant than its predecessor.

Auto white balance performance was similar to the X100's. Plenty of adjustments are provided for correcting colour balance as you shoot. Autofocusing was generally fast, particularly after dark.

In movie mode, phase-detection AF enabled the camera to re-focus during recordings, although autofocus in movie mode remained relatively slow. Video quality was slightly better than the X100's, although many of the same limitations remain, particularly a lack of in-camera stabilisation.

Camera response times were generally faster. Capture lag averaged 0.1 seconds but vanished with pre-focusing. Shot-to-shot times averaged 1.1 seconds without flash and 1.5 seconds with. It took 1.3 seconds on average to process each file, regardless of format.

Continuous shooting times were slightly slower than the published specifications and the buffer filled after eight or nine shots with RAF.RAW files and RAW+JPEG pairs. Capture rates were just over six frames/second for both formats.

▶ **Full review at [www.photoreview.com.au](http://www.photoreview.com.au)**



## ADVANCED COMPACT FIXED LENS

# Sony Cyber-shot DSC-RX1

## SPECIFICATIONS

**Image sensor:** 35.8 x 23.8mm Exmor R CMOS sensor with 24.7 million photosites (24.3 megapixels effective)

**Lens:** Carl Zeiss Sonnar T\* 35mm f/2 prime lens

**Image formats:** Stills – ARW.RAW (v. 2.3), JPEG (Exif 2.3), RAW+JPEG; Movies – AVCHD, AVC MPEG-4 with stereo soundtracks

**Max. Image Sizes:** Stills – 3:2: 6000 x 4000; 16:9: 6000 x 3376

**Movie options:** 1920 x 1080 at 60, 50, 25, 24 fps; 1440 x 1080 at 30, 25 fps; 1280 x 720 at 30 fps; 640 x 480 at 30, 25 fps

**Focus system:** Contrast-detection AF with 25 selectable AF points; range 25 cm to infinity; macro to 20cm

**Power supply:** NP-BX1 rechargeable lithium-ion battery; CIPA rated for approx. 330 shots/charge

**Dimensions (wxhxd):** 113.3 x 65.4 x 69.6mm

**Weight:** Approx. 453 grams

## AT A GLANCE

The first fixed-lens camera with a 36 x 24mm sensor features a 35mm f/2 lens in a compact, classically-styled camera body.

### RATING (out of 10)

- ▶ Build: 9.0
- ▶ Ease of use: 9.0
- ▶ Autofocusing: 8.5
- ▶ Still image quality: JPEG - 8.5; RAW - 9.0
- ▶ Video quality: 8.0
- ▶ **OVERALL: 8.5**

**RRP:** \$2999

**Distributor:** Sony Australia; 1300 720 071; [www.sony.com.au](http://www.sony.com.au)

Sony's Cyber-shot DSC-RX1 is the first compact camera with a 24-megapixel 'full-frame' sensor. At 113.3mm wide, 65.4mm high and 69.6mm thick it weighs just under half a kilogram with battery and memory card installed. An aperture ring on the barrel of the Sonnar 35mm lens requires you to use the camera with two hands.

Manual focusing is achieved by turning the ring on the lens but there's no auto setting, so the ring is disabled in the S and Auto modes. While the ring turns smoothly, it's not coupled to the lens optics so there's not much tactile feedback. A distance scale is displayed on the monitor for stills shooting (but not in movie mode). The MF Assist setting magnifies the centres of the frame in MF mode or zooms in on the selected AF point in DMF mode.

Landscape photographers may find the lens angle of view too narrow, although it's almost ideal for shooting vertical panoramas. Portrait photographers will find it wide enough for environmental portraits but too short for head-and-shoulders shots. It's too short for wildlife, sports and action photography and the focusing limit of 20cm is unsuitable for close-ups.

But the RX1 is small enough to be inconspicuous for street photography and the manual controls are easy to adjust on the fly. Superior low light performance allows high ISO settings to be used in poorly-lit situations but the lack of stabilisation may present problems.

The solid metal body and accessible manual controls leave no room for complaint in both areas (hence our 9.0 rating). Sadly, no viewfinder is provided, although optical and electronic finders are available at \$599 and \$499, respectively.

The RX1 provides three user-programmable memories on its mode dial and 25 functions can be assigned to the rear panel buttons. But you'll have to remember which function you've assigned to which button as the camera provides no assistance. The supplied user manual is almost totally useless and poorly indexed.

The battery and memory card share a compartment in the base of the camera. And it is here we have our first 'beef' with the RX1: the battery must be charged in the camera, making the camera unusable for several hours.

You can buy a 'travel charger' (BC-TRX) for \$69 and spare batteries cost \$69 each. But we feel it should have been included with the camera.

## Performance

Pictures taken with the review camera were sharp and colourful and both the AF system and exposure system handled a wide range of shooting conditions effectively. Autofocusing was quite fast and very accurate for a camera with a contrast-based AF system.

Imatest showed colour accuracy to be generally good with JPEG files and saturation was only slightly boosted in the warmer hues. Resolution came close to expectations with JPEG files and slightly exceeded them for ARW. RAW files. It also held up well across most of the camera's ISO range. Long exposures at night contained plenty of detail up to ISO 6400, with slight softening becoming evident at ISO 12,800.

Auto white balance performance was similar to the SLT-A99 with a slight orange cast remaining under incandescent lights but close-to-neutral colours in fluorescent lighting. Plenty of in-camera corrections are provided.

The fixed 35mm focal length and AF limitations make it difficult to record video clips that are as engaging as those from one of Sony's SLT cameras with a zoom lens. Engaging the SteadyShot (digital) stabilisation also changes the camera's field of view. Video quality can best be classed as adequate but clips recorded in the MP4/1440 mode were vertically distorted. Soundtracks were clear and few operational noises were picked up.

The review camera powered-up in approximately 1.5 seconds. Capture lag averaged 0.25 seconds, but was eliminated with pre-focusing. Shot-to-shot times averaged 0.9 seconds without flash and 5.6 seconds with. It took roughly a second to process JPEG or ARW.RAW files and 1.15 seconds for each RAW+JPEG pair.

A burst of 10 Large/Extra Fine JPEG frames was recorded in 3.7 seconds; which is slower than the 5 fps specified. This burst took 14 seconds to process.

➤ **Full review at [www.photoreview.com.au](http://www.photoreview.com.au)**

# NEW! NIKON D7100

## WITH BONUS WiFi ADAPTER VALUE \$100



Save \$100<sup>1</sup>  
**NOW ONLY**  
**\$1999.95**



### Nikon

**D7100 DSLR Super Kit**  
 with AFS 18-105mm VR Zoom

This enthusiast camera is a serious upgrade of the much-loved D7000, featuring a 24 Megapixel sensor with no OLED filter. This allows for a much sharper resolution than your average camera at this level. Nikon have also included 51 Auto Focus points; this lets you pinpoint your focus to more areas of the frame than ever before. Videographers will delight in the D7100's improved 180p30 shooting as well as built-in stereo microphones.



- 27-158mm Equiv
- 24 Mega Pixel
- 51 Point AF
- 3.2" LiveView Screen
- Full HD Movie Mode
- Lithium Battery
- Includes ClubTed Card



#### >SHOP ONLINE

- All products at competitive prices • Advice
- Photobooks and prints • Product comparisons
- Australian warranty on all products

[www.teds.com.au](http://www.teds.com.au)



#### >SHOP BY PHONE

- Fully trained staff • Product knowledge & advice
- Order by phone - we'll deliver or pick up instore
- Monday to Friday

Ph: 1800 186 895



#### >SHOP IN STORE

- Expert staff • Full range of product • Print kiosks
- 23 stores nationwide • Open 7 days
- Come in and discuss your needs

23 Stores Nationwide

# Ted's cameras

## Helping you capture life

### Victoria

Melbourne 235 Elizabeth Street Ph: 9602 3733  
 Camberwell 843 Burke Road Ph: 9861 9100  
 Chadstone Shopping Centre Ph: 9568 7800 - Near David Jones  
 Doncaster Westfield Ph: 9848 3832 - New! Near Safeway  
 Eastland Shopping Centre Ph: 9870 9500 - Near Coles  
 Fountain Gate Westfield Ph: 9705 4000 - Near Kmart  
 Greensborough Plaza Ph: 9434 3460 - Near Kmart  
 Frankston 54 - 58 Wells Street Ph: 9783 8160  
 Knox City Shopping Centre Ph: 9800 1677 - Near Fruit Market  
 Northland Shopping Centre Ph: 9478 7026 - Near JB HiFi  
 Highpoint Shopping Centre Ph: 9317 4477 - New! Near Rebel Sport  
 Southland Westfield Ph: 9583 5433 - Near Myer  
 Werribee Plaza Shopping Centre Ph: 9748 4333

### New South Wales

Sydney 317 Pitt Street Ph: 9264 1687  
 Erina Fair Shopping Centre Ph: 4367 8833

### ACT

Canberra 9 Petrie Plaza - Basement Ph: 6247 8711  
 Canberra Centre Bunda St Ph: 6249 7364

### South Australia

Adelaide 212 Rundle Street Ph: 8223 3449  
 Marion Westfield Ph: 8179 4800 - Near JB HiFi

### Queensland

Brisbane 150 Adelaide Street Ph: 3221 9911  
 Southport 36 Nerang Street Ph: 5591 8203  
 Garden City Westfield Ph: 3849 2333

### NEW TED'S MAROOCHYDORE STORE!

50 Plaza Pde (near Officeworks) Ph: 5479 2844

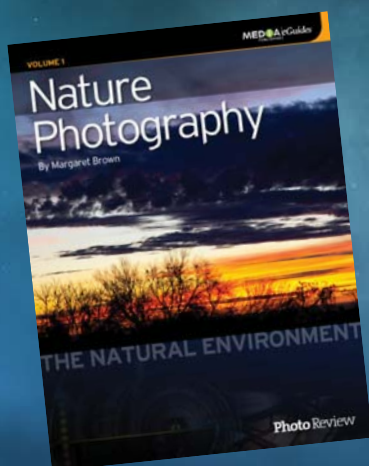
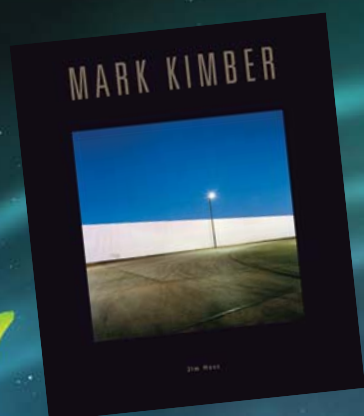
**Buy or browse online at [teds.com.au](http://teds.com.au)**

All offers end 30th June 2013 or until sold out or otherwise stated. Not all stocks available all stores. Every effort is made to avoid errors in this publication, but Ted's does not warrant the accuracy of the content of this publication and may correct any errors and may refuse to sell any product or service. Any Liability of Ted's in respect of any part of this publication is negated to the extent permitted by law. And if liable Ted's obligation is limited to resupply of the goods or services, or repair, or payment for customers doing so, as Ted's chooses. Bonus products included at Ted's normal price only.

NEW

**TALUBOOKS**  
The eBook People

Online bookstore  
specialising in  
photography and art  
books and ebooks



Convenient, easy to  
read ebooks with superb  
images and instant  
download for iPad, iPhone,  
tablets, smartphones,  
Mac and PC.

High quality print editions  
also available.

**TaluBooks.com**

## BUYERS GUIDE



### ADVANCED COMPACT FIXED LENS **Pentax MX-1**

The Pentax MX-1 combines solid build quality and traditional styling with an up-to-date 12-megapixel, 7.6 x 5.7mm backside illuminated CMOS sensor. Its 4x optical zoom lens covers the equivalent of 28-112mm in 35mm format and it's supported by three-stop sensor-shift image stabilisation.

Compared with the average short-zoom digicam, it's only just jacket-pocketable. In bright sunlight the screen becomes almost unusable at any angle, brightness adjustments notwithstanding. This camera REALLY needs a viewfinder.

The review camera delivered sharp, natural-looking images and autofocus was fast for a contrast-based system, even in relatively dim lighting. Imatest showed it met expectations for the sensor's resolution with JPEGs and exceeded them for DNG.RAW files.

Despite lacking a lens hood, the lens was moderately flare-resistant. Lateral chromatic aberration was consistently low. Long exposures at night were almost noise-free up to ISO 3200. Flash exposures were even across most sensitivity settings and video performance was competent enough for occasional recordings.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)

#### SPECIFICATIONS

**Image sensor:** 7.6 x 5.7mm Backlit CMOS sensor with 12.76 million photosites (12 megapixels effective)

**Lens:** smc Pentax 6.0-24mm f/1.8-2.5 zoom lens (28-112mm in 35mm format)

**Zoom ratio:** 4x optical, up to 1.95x digital at full resolution or 7.8x at 3M

**Dimensions (wxhxd):** 122.5 x 60 x 51.5mm

**Weight:** 363 grams (without battery and memory card)

#### AT A GLANCE

A compact digicam with traditional film camera styling and controls plus a slightly larger-than-average image sensor and a 4x optical zoom lens.

##### RATING (out of 10)

- ▶ Build: 8.5
- ▶ Autofocusing: 8.5
- ▶ Video quality: 8.0
- ▶ Ease of use: 8.0
- ▶ Image quality: 9.0
- ▶ **OVERALL: 8.5**

RRP: \$499

Distributor: CR Kennedy & Company;  
(03) 9823 1555; [www.crkennedy.com.au](http://www.crkennedy.com.au)



### ADVANCED COMPACT FIXED LENS **Fujifilm X20**

Fujifilm's X20 comes in black or silver and black and has the same rangefinder styling as most competitors. With its metal body and smart leatherette finish, it looks classy and feels nice to hold and operate. A new X-Trans CMOS II sensor without optical low pass filters improves resolution and a new EXR Processor II reduces noise and improves operating speeds.

The viewfinder has a new 'Digital Trans Panel' that allows shooting data to be overlaid on the scene and an eye sensor switches between monitor and viewfinder automatically. Continuous shooting speeds increase to 12 fps at maximum resolution. Phase detection and face detection AF are supported.

Imatest testing showed an improvement in imaging performance with resolution slightly above expectations for both ARW.RAW and JPEG files. The highest resolution was achieved at around f/4.

Little noise was visible in shots taken at ISO settings up to ISO 800. Lateral chromatic aberration was negligible. Camera response times have also improved.

➤ Full review at [www.photoreview.com.au](http://www.photoreview.com.au)

#### SPECIFICATIONS

**Image sensor:** 8.8 x 6.6mm X-Trans CMOS II sensor with 12 megapixels effective

**Lens:** Fujinon 7.1-28.4mm f/2-2.8 lens (28-112mm in 35mm format)

**Zoom ratio:** 4x optical, approx. 2x digital

**Dimensions (wxhxd):** 117.0 x 69.6 x 56.8mm

**Weight:** Approx. 333 grams (without battery and card)

#### AT A GLANCE

An update to the X10 featuring a new 12-megapixel X-Trans CMOS II sensor with built-in phase detection pixels, hybrid autofocus and 1080p movie recording.

##### RATING (out of 10)

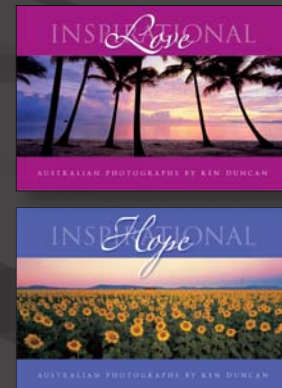
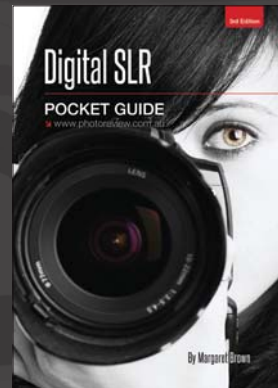
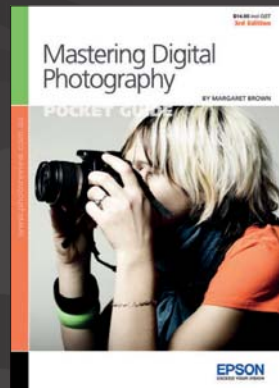
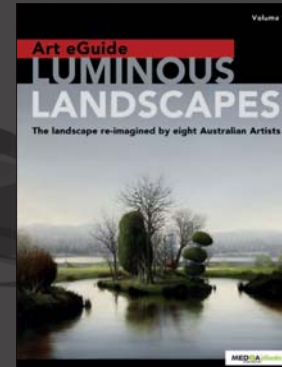
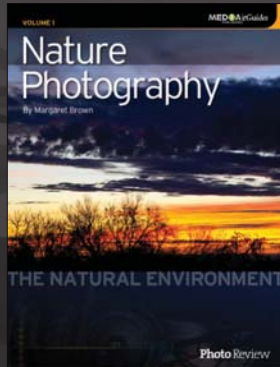
- ▶ Build: 8.8
- ▶ Autofocusing: 8.5
- ▶ Image quality: JPEG - 9.0; RAW - 9.0
- ▶ Ease of use: 8.5
- ▶ Video quality: 8.5
- ▶ **OVERALL: 8.8**

RRP: \$749

Distributor: Fujifilm Australia; 1800 226 355;  
[www.fujifilm.com.au](http://www.fujifilm.com.au)

# Photography Ebooks

Convenient, quick-reference guides to better photography.  
Read on iPad, Kindle, tablets, iPhone + smartphones.



## ➤ Nature Photography

Fully illustrated guide to superb images of the natural environment.  
*8 chapters, 69 images.*

## ➤ Landscape Photography

Trusted tips and advice on how to improve your landscape photography  
*12 chapters, 56 images.*

## ➤ Ken Duncan: Inspirational Hope

24 stunning panoramic images, inspirational quotes and related stories.

## ➤ New Zealand

Guide to the best photo locations on the north and south islands of NZ.  
*30 locations, 168 images.*

## ➤ Mastering Digital Photography

Everything you need to master the fundamentals of digital photography.  
*10 chapters, 109 images.*

## ➤ Travel Photography

Easy to follow guide to the basics of great travel photos.  
*5 chapters, 58 images.*

## ➤ Digital SLR

3rd Edition fully revised & updated. Easy to follow guide to superb digital SLR photography.  
*10 chapters, 109 images*

## ➤ Luminous Landscapes

The landscape re-imagined by eight Australian artists.  
*10 chapters, 42 images.*

## ➤ Ken Duncan: Inspirational Love

23 stunning panoramic images, inspirational quotes and related stories.

Instant download at  
[www.talubooks.com](http://www.talubooks.com)

# Image Review

## ➤ Don's Review

This is a strong image, both in terms of its composition and the technical execution. It's tack sharp and the exposure is faultless.

Whilst the darkest shadow areas (eg the trees left) are necessarily featureless, the photographer has ensured that they are unobtrusively small.

Midtone balance is spot-on and everything is in focus from the handrail bottom right to

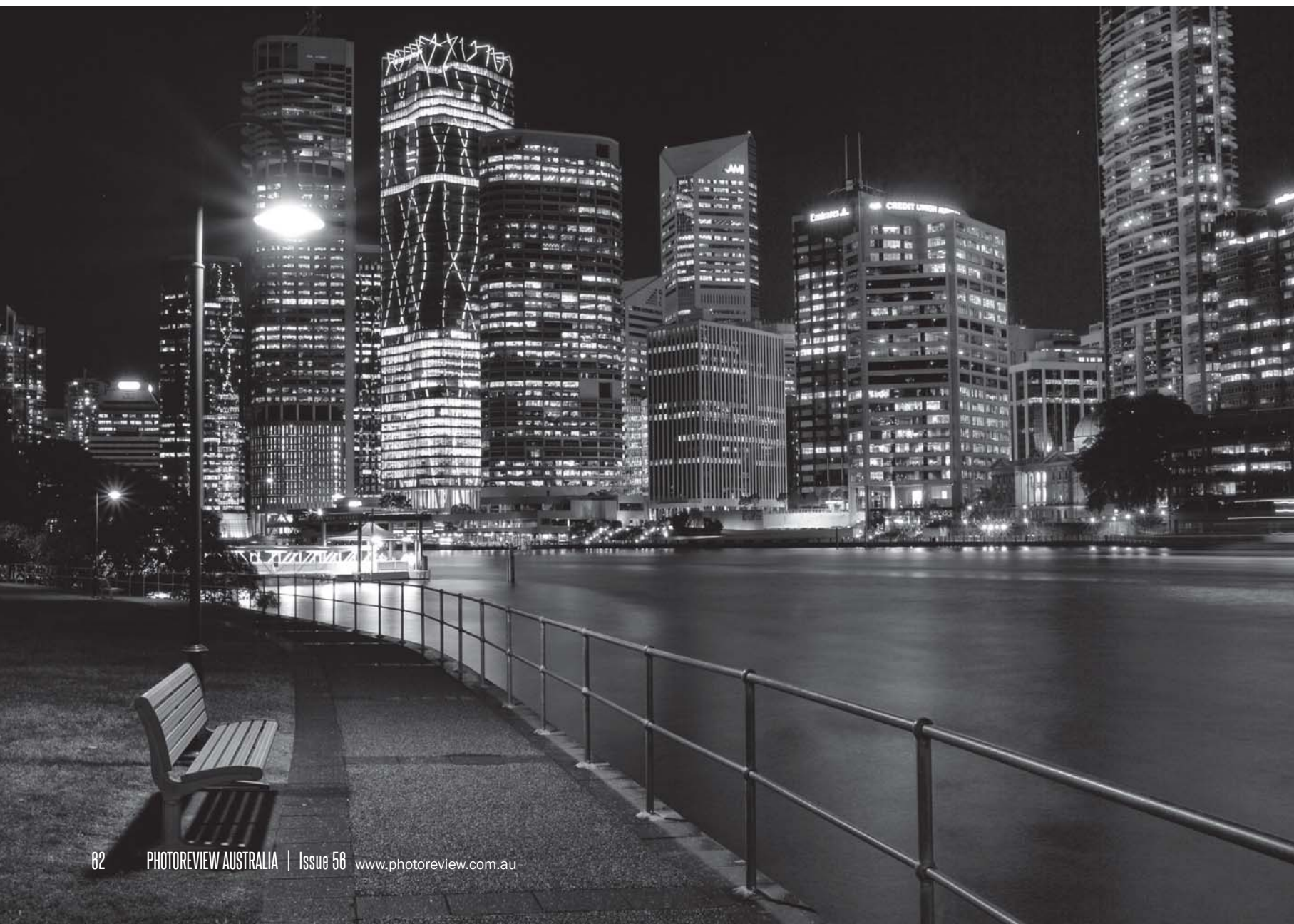
infinity. It's attention to detail like this that really makes the picture.

It is quite a still picture (not that that's a bad thing!) and therefore rather "quiet". If the photographer wanted to punch things up, revisiting the scene on a rainy evening might be interesting. Or getting someone to stand in the lighted spot created by the more distant of the two footpath light poles.

*Holman Street Park by James Fitzroy*

*This one is one of my my personal favourites taken last year of a road trip around Australia. I try to concentrate on landscape photography but now I am starting to branch out to other styles. It was taken in Brisbane near the Holman street pier at night.*

*Canon 7D; 17-40mm lens; f/16 at 25s; monochrome*





### Don's Review

There's so much to like about this picture, not least of which is the splash of bright colour on the middle child's face. After my eye was drawn the striking colour though, I discovered the real beauty of the image - the contrasting expressions.

Street portraiture is always a challenge. People typically put on their "photo face" if you try to shoot straight on in this way. But here the photographer has been rewarded with direct expressions, and the prize of prizes, that beautiful tentative expression of the boy on the left.

The photographer makes good use of the magic hour light too. The warm, late afternoon light models the faces very nicely and the auto

exposure is right on the money. Focus too is very good, although if I could change anything on that front it would be to make the tentative boy's right eye the point of optimal sharpness.

Composition works very well, but if the photographer hasn't already done so, it might be fun to see how things look if the image was cropped in from the bottom right corner. This might balance things up a bit as the "weight" of the composition is on the left.

*World Refugee Day 2009 by Stephen Barnett*

*I took this image in Darwin on World Refugee Day, June 20, 2009.*

*Canon EOS 400D; EF-S 60mm f/2.8 Macro USM lens; f/4 at .006s*

### Submit your image for review

Send to [edmail@photoreview.com.au](mailto:edmail@photoreview.com.au)

- JPEG format, maximum 6MB
- image caption/title
- camera/lens used
- image description/comments

Note: All photographers retain copyright to their submitted image.

Photo Review retains the right to publish submitted image in the magazine, mag app, and on [www.photoreview.com.au](http://www.photoreview.com.au).

Your editor shares six of his favourite recent photographic website finds.

## NatGeo random style

► [bit.ly/10KW9W2](http://bit.ly/10KW9W2)

Showing that they're just as hip as any hip kid with a smartphone and a tablet, *National Geographic* has created its very own Tumblr page. Taking minimalism to the logical extreme, this is really just a long scrollable sequence of images pulled from *National Geographic*'s massive archive. There isn't any detectable pattern to the subject matter apart from the fact that the photographs are uniformly striking in their combination of technical execution, composition and subject matter.



## Crowdsorcery?

► [bit.ly/pr56ne2](http://bit.ly/pr56ne2)

Look out photo stock libraries, the crowd sourcing movement has you in its sights. ImageBrief's concept is simple: Take briefs from ad agencies and the like looking for stock photography, then toss them out to a crowd of photographers who scour their brains and then their hard drives for possible images. The wrinkle is that the agencies get to use natural language searches, eg, 'photographer using piece of fruit as a camera'. Photographers get 70% of sales.



## One for the DIY'ers

► [bit.ly/pr56ne3](http://bit.ly/pr56ne3)

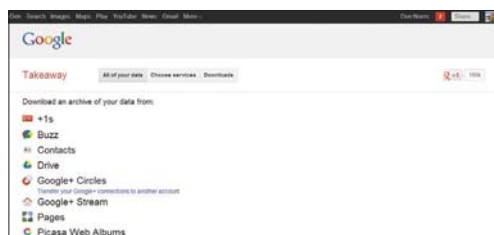
DIYPhotography.net is a bit of a grab bag. In addition to DIY projects such as building a softbox from common household items, the site features cheat sheets, how-tos, tutorials and product reviews of the sort you won't find just anywhere (like using a game controller to speed through your image culling chores).



## Take your Googles

► [bit.ly/pr56ne4](http://bit.ly/pr56ne4)

It doesn't look as though search giant Google will fade away anytime soon. However, it's good to know that you can always download all your Google bits and pieces via the little-known Google Takeaway page. Jump to the link to back up your contacts, drive data, Picasa pictures and more.



## Extreme Ice project

► [bit.ly/pr56ne5](http://bit.ly/pr56ne5)

We all know that climate change is transforming our planet, but it's often difficult to visualise the vast extent of those changes. In 2007, James Balog started a project to document the changes to the world's glaciers. 28 solar-powered DSLRs are set up at 13 glaciers around the world. Each unit records an image every half hour and Balog has transformed the imagery into a dazzling and sobering feature length film called *Chasing Ice* (the trailer for which is on the website).



## Bottoms up

► [bit.ly/10N47xM](http://bit.ly/10N47xM)

Christopher Jonassen's photo essay entitled *Devour* consists exclusively of pictures of the bottoms of fry pans. Scroll through and admire the beautiful results of his simple idea.



PICTURES UNDER DISCUSSION

BALLARAT  
INTERNATIONAL  
**FOTO**  
BIENNALE  
**17.8 > 15.9 '13**

[www.ballaratfoto.org](http://www.ballaratfoto.org)

CITY OF  
**BALLARAT**



**BALLARAT**  
REGIONAL TOURISM



media partner

**PHOTOREVIEW**  
AUSTRALIA

Breaking the speed limit.



Extreme Resolution, Ultimate Clarity, Classic Design,  
& the World's fastest 4/3" Auto Focus of 0.08sec\*



**X100S**

**FUJIFILM**

[www.facebook.com/FujifilmCamerasAustralia](http://www.facebook.com/FujifilmCamerasAustralia)

[www.fujifilm-x.com](http://www.fujifilm-x.com)

\*FUJIFILM research as of November 2012. Compared with other digital cameras equipped with a 4/3" sensor or larger. Based on CIPA standards & conducted in High Performance Mode.